

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Crown Electrokinetics Corp.

(Exact name of registrant as specified in its charter)

Delaware	238150	47-5423944
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

**1110 NE Circle Blvd.
Corvallis, Oregon 97330
(213) 600-4250**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Douglas Croxall
Chief Executive Officer
1110 NE Circle Blvd.
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(213) 660-4250**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Please send copies of all communications to:

M. Ali Panjwani, Esq. Pryor Cashman LLP 7 Times Square New York, New York 10036 (212) 421-4100	Robert F. Charron, Esq. Ellenoff Grossman & Schole LLP 1345 Avenue of the Americas New York, New York 10105 (212) 370-1300
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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box: ☒

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS SUBJECT TO COMPLETION DATED AUGUST 14, 2023

**[] Shares of Common Stock
Warrants to Purchase up to [] Shares of Common Stock
Up to [] Shares of Common Stock underlying Warrants
Pre-Funded Warrants to purchase up to [] Shares of Common Stock
Up to [] Shares of Common Stock underlying Pre-Funded Warrants**

CROWN ELECTROKINETICS CORP.

This is a best efforts public offering of up to: (i) [] shares of our common stock, par value \$0.0001 per share (the “Common Stock”) and (ii) Common Stock purchase warrants to purchase up to an aggregate of [] shares of Common Stock (the “Warrants”) at an assumed combined public offering price of \$[] per share of Common Stock and accompanying Warrant (which is based on the closing price of our Common Stock of \$[] per share as reported by The Nasdaq Capital Market on [], 2023). All share numbers herein are adjusted for the one-for-sixty (1:60) reverse stock split of our Common Stock that the Company plans to effectuate on [], 2023 (the “Reverse Stock Split”).

The following is a summary of all of our securities sold by us within the past three years which were not registered under the Securities Act, as retrospectively adjusted to reflect our 1-for-60 reverse stock split made effective on August 14, 2023 (the “Reverse Stock Split”):

We are also offering to those purchasers, if any, whose purchase of Common Stock in this offering would otherwise result in any such purchaser, together with its affiliates, beneficially owning more than 4.99% (or, at the election of such purchaser, 9.99%) of our outstanding Common Stock immediately following the consummation of this offering, the opportunity to purchase pre-funded warrants in lieu of shares of our Common Stock that would otherwise result in such purchaser’s beneficial ownership exceeding 4.99% (or, at the election of such purchaser, 9.99%) of our outstanding Common Stock (the “Pre-Funded Warrants”). The purchase price for each Pre-Funded Warrant will equal the per share public offering price for the Common Stock in this offering less the \$0.001 per share exercise price of each such Pre-Funded Warrant. Each Pre-Funded Warrant will be exercisable upon issuance and will not expire prior to exercise. For each Pre-Funded Warrant we sell, the number of shares of Common Stock we are offering will be decreased on a one-for-one basis. This prospectus also relates to the shares of Common Stock that are issuable from time to time upon exercise of the Pre-Funded Warrants.

Each Warrant, upon exercise at a price of \$ per share (% of the combined public offering price of the Common Stock and accompanying Warrant), will result in the issuance of [one share] of Common Stock to the holder of such Warrant. This prospectus also relates to the shares of Common Stock that are issuable from time to time upon exercise of the Warrants.

For purposes of clarity, each share of Common Stock or Pre-Funded Warrant to purchase one share of Common Stock is being sold together with a Warrant to purchase [one share] of Common Stock. The Warrants will be immediately exercisable and will expire five years after their initial exercise date. The shares of Common Stock, and as applicable, Pre-Funded Warrants, can be purchased only with the accompanying Warrants, but will be issued separately, and will be immediately separable upon issuance.

Our Common Stock is listed on The Nasdaq Capital Market (“Nasdaq”) under the symbol “CRKN.” The last reported closing price for our Common Stock on Nasdaq on August 11, 2023 was \$0.058 per share. None of the Warrants or Pre-Funded Warrants are listed on a national securities exchange. We do not intend to apply to list Warrants or Pre-Funded Warrants on any national securities exchange. Without an active trading market, the liquidity of the Warrants or Pre-Funded Warrants may be limited.

The public offering price for our securities in this offering will be determined at the time of pricing, and may be at a discount to the then current market price. The assumed combined public offering price used throughout this prospectus may not be indicative of the final offering price. The final public offering price will be determined through negotiation between us and investors based upon a number of factors, including our history and our prospects, the industry in which we operate, our past and present operating results, the previous experience of our executive officers and the general condition of the securities markets at the time of this offering.

We expect this offering to be completed not later than two business days following the commencement of this offering and we will deliver all securities to be issued in connection with this offering upon receipt of investor funds received by us. Accordingly, neither we nor the placement agent have made any arrangements to place investor funds in an escrow account or trust account since the placement agent will not receive investor funds in connection with the sale of the securities offered hereunder.

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We have engaged Roth Capital Partners, LLC as our exclusive placement agent (“Roth” or the “placement agent”) to use its reasonable best efforts to solicit offers to purchase our securities in this offering. The placement agent has no obligation to purchase any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. Because there is no minimum offering amount required as a condition to closing in this offering the actual public offering amount, placement agent’s fee, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering amounts set forth above and throughout this prospectus. We have agreed to pay the placement agent the placement agent fees set forth in the table below. See “*Plan of Distribution*” in this prospectus for more information.

	Per Share and Accompanying Warrant	Per Pre-Funded Warrant and Accompanying Warrant	Total
Combined public offering price	\$	\$	\$
Placement agent fees ⁽¹⁾	\$	\$	\$
Proceeds, before expenses, to us ⁽²⁾	\$	\$	\$

- (1) Represents a cash fee equal to % of the aggregate purchase price paid by investors in this offering. See “*Plan of Distribution*” beginning on page 59 of this prospectus for a description of the compensation to be received by the placement agent.
- (2) The amount of offering proceeds to us presented in this table does not give effect to any exercise of the Warrants or Pre-Funded Warrants.

Investing in our securities involves a high degree of risk. See “*Risk Factors*” beginning on page 20 of this prospectus to read about factors you should consider before investing in our securities.

We anticipate that delivery of the shares of Common Stock and Pre-Funded Warrants, as applicable, and accompanying Warrants against payment therefor will be made on or before , 2023.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of the disclosures in the prospectus. Any representation to the contrary is a criminal offense.

Roth Capital Partners

The date of this prospectus is , 2023

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ABOUT THIS PROSPECTUS

The registration statement on Form S-1 of which this prospectus forms a part and that we have filed with the U.S. Securities and Exchange Commission (the “SEC”), includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus and the related exhibits filed with the SEC, together with the additional information described under the heading “*Where You Can Find More Information.*”

You should rely only on the information contained in this prospectus and the related exhibits, any prospectus supplement or amendment thereto, or to which we have referred you, before making your investment decision. Neither we, nor the placement agent or any financial advisor engaged by us in connection with this offering, have authorized anyone to provide you with additional information or information different from that contained in this prospectus. Neither the delivery of this prospectus nor the sale of our securities means that the information contained in this prospectus is correct after the date of this prospectus.

You should not assume that the information contained in this prospectus, any prospectus supplement or amendments thereto, as well as information we have previously filed with the SEC, is accurate as of any date other than the date on the front cover of the applicable document. Our business, financial condition, results of operations and prospects may have changed since those dates. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so.

For investors outside the United States: Neither we, nor any placement agent or financial advisor engaged by us in connection with this offering, have taken any action that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities covered hereby and the distribution of this prospectus outside of the United States.

No person is authorized in connection with this prospectus to give any information or to make any representations about us, the securities offered hereby or any matter discussed in this prospectus, other than the information and representations contained in this prospectus. If any other information or representation is given or made, such information or representation may not be relied upon as having been authorized by us. To the extent there is a conflict between the information contained in this prospectus and any prospectus supplement having a later date, the statement in the prospectus supplement having the later date modifies or supersedes the earlier statement.

Neither we nor the placement agent have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. You are required to inform yourself about, and to observe any restrictions relating to, this offering and the distribution of this prospectus.

When used herein, unless the context requires otherwise, references to “Crown,” “the “Company,” “we,” “our” and “us” refer to Crown Electrokinetics Corp., a Delaware corporation.

RISK FACTOR SUMMARY

Below is a summary of the principal factors that make an investment in our securities speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found under the heading “Risk Factors” and should be carefully considered, together with other information included in this prospectus.

Risks Related to Our Business

- We may require additional funding to sustain our ongoing operations and to continue our research and development activities.
- We have a history of operating losses.
- We may not generate sufficient cash flows to cover our operating expenses.
- We have never declared a cash dividend and do not intend to declare a cash dividend in the foreseeable future.
- We do not directly manufacture products using Electrokinetic technology. We currently rely upon the activities of our partners and their customers in order to be profitable.
- Electrokinetic products face intense competition, which could affect our ability to increase our revenues.
- Declining production of automobiles and real estate could harm our business.
- We are dependent on key personnel.
- We are dependent on electrokinetic technology.
- Our patents and other protective measures may not adequately protect our proprietary intellectual property, and we may be infringing on the rights of others.
- The extent to which the COVID-19 outbreak impacts our business, results of operations and financial condition will depend on future developments, which cannot be predicted.
- Our future growth and success is dependent upon the real estate industry’s willingness to adopt smart glass and specifically our products, especially in the smart glass market which we are targeting with DynamicTint™.
- Our new products and services may not be successful.
- If we are unable to establish and maintain confidence in our longterm business prospects among business customers, analysts and within our industries, then our financial condition, operating results, and business prospects may suffer materially.
- Our operating and financial results forecast relies in large part upon assumptions and analyses developed by us. If these assumptions or analyses prove to be incorrect, our actual operating results may be materially different from our forecasted results.
- Disruption of supply or shortage of materials, in particular for glass, could harm our business.
- Increases in cost of materials could harm our business.
- We may be unable to meet our growing production demand, product sales, delivery plans and servicing needs, or accurately project and manage this growth nationwide or internationally, which could harm our business and prospects.
- We rely on complex machinery for our operations, and production involves a significant degree of risk and uncertainty in terms of operational performance and costs.
- If our products fail to perform as expected our ability to develop, market and sell our products and services could be harmed.

- We may choose to or be compelled to undertake product recalls or take other similar actions, which could adversely affect our brand image and financial performance.
- We must successfully maintain and upgrade our information technology systems.
- We rely on certain third-party providers of licensed software and services integral to the operations of our business.
- Any unauthorized control or manipulation of our products' systems could result in loss of confidence in us and our products and harm our business.
- If our security controls are breached or unauthorized or inadvertent access to business customers' information or other data are otherwise obtained, our services may be perceived as insecure, we may lose existing business customers or fail to attract new business customers, our business may be harmed, and we may incur significant liabilities.
- Our products and our website, systems, and data we maintain may be subject to intentional disruption, other security incidents, or alleged violations of laws, regulations, or other obligations relating to data handling that could result in liability and adversely impact our reputation and future sales.
- Our products and services are subject to substantial regulations, which are evolving, and unfavorable changes or failure by us to comply with these regulations could substantially harm its business and operating results.
- We are subject to various government regulations that could impose substantial costs upon us and negatively impact our ability to operate our manufacturing facility.
- Many of our products must comply with local building codes and ordinances, and failure of our products to comply with such codes and ordinances may have an adverse effect on its business.
- Compliance with the regulations of the OSHA can be costly, and non-compliance with such requirements may result in potentially significant monetary penalties, operational delays, negative publicity and adverse effect on our financial condition.
- We are subject to labor and employment laws and regulations, which could increase our costs and restrict our operations in the future.
- We may fail to obtain or maintain necessary licenses or otherwise fail to comply with applicable laws and regulations.
- We are subject to requirements relating to environmental and safety regulations and environmental remediation matters which could adversely affect its business, results of operation and reputation.
- Our insurance strategy may not be adequate to protect us from all business risks.
- Our current and future warranty reserves may be insufficient to cover future warranty claims which could adversely affect our financial performance.
- Our business may be adversely affected by any disruptions caused by union activities.
- Adverse developments in the credit markets may impair our ability to secure debt financing.
- Loss of a major customer could result in a decrease in our future sales and earnings.
- If we are unable to achieve our targeted manufacturing costs for our products, our financial condition and operating results will suffer.
- We are exposed to fluctuations in currency exchange rates, which could affect our financial results.
- We are subject to collection risks.
- Future transactions could pose risks.

Risks Related to Owning Our Common Stock

- If the trading price of our Common Stock fails to comply with the continued listing requirements of the NASDAQ Capital Market, we would face possible delisting, which would result in a limited public market for our Common Stock and make obtaining future debt or equity financing more difficult for us.
- If our shares of Common Stock become subject to the penny stock rules, it would become more difficult to trade our shares.
- Our stock price may be volatile, which could result in substantial losses to investors and litigation.
- Our certificate of incorporation and bylaws, and certain provisions of Delaware corporate law, contain provisions that could delay or prevent a change in control even if the change in control would be beneficial to our stockholders.
- If equity research analysts do not publish research or reports about our business, or if they issue unfavorable commentary or downgrade our Common Stock, the market price of our Common Stock will likely decline.
- As a newly Nasdaq-listed company, we will incur material increased costs and become subject to additional regulations and requirements.
- We do not anticipate paying any dividends on our Common Stock for the foreseeable future.
- If we fail to develop and maintain proper and effective internal control over financial reporting, our ability to produce timely and accurate financial statements, comply with applicable laws and regulations, or access the capital markets could be impaired.
- We are an “emerging growth company” as defined in the JOBS Act and a “smaller reporting company” as defined in the Securities Exchange Act of 1934, as amended, or the Exchange Act, and are able to avail itself of reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies, which could make our Common Stock less attractive to investors and adversely affect the market price of our Common Stock in the future.
- We are required by Section 404 of the Sarbanes-Oxley Act to evaluate the effectiveness of its internal control over financial reporting. If we are unable to achieve and maintain effective internal controls, our operating results and financial condition could be harmed.

Risks Related to the Offering

- This is a best efforts offering, no minimum amount of securities is required to be sold, and we do not expect to raise the amount of capital we believe is required for our business plans.
- There is no public market for the Warrants or Pre-Funded Warrants.
- The Warrants in this offering are speculative in nature.
- Holders of the Warrants and Pre-Funded Warrants will not have rights of holders of our shares of Common Stock until such Warrants or Pre-Funded Warrants are exercised.
- If you purchase shares of Common Stock in this offering, you will incur immediate and substantial dilution in the book value of the shares of our Common Stock.
- Our share price has been volatile, and may continue to be volatile, which may subject us to securities class action litigation in the future.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including the information set forth under the headings “Risk Factors” as included elsewhere in this prospectus and our financial statements and the related notes and the section entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, in our Annual Report on Form 10-K for the year ended December 31, 2022 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2023, both of which are incorporated by reference herein.

Our Company

Business Overview

We develop and sell optical switching film that can be embedded between sheets of glass or applied to the surface of glass, or other rigid substrates such as acrylic, to electronically control opacity (“DynamicTint™”). Originally developed by Hewlett-Packard (“HP”), our technology allows a transition between clear and dark in seconds and can be applied to a wide array of windows, including commercial buildings, automotive sunroofs, and residential skylights and windows. At the core of our proprietary and patent-protected technology is a thin film that is powered by electrically charged pigment which can reduce heat gain replacing common window tints but also providing a more sustainable alternative to blinds and other traditional window treatments. We partner with leading glass and film manufacturers for mass production and distribution of DynamicTint.

Electrokinetic Film Technology

Our electrokinetic (EK) technology was derived from proprietary ink and microfluidic technology developed at HP. Electrokinetic refers to the movement of particles within a fluid under the influence of an electric field. Our EK film technology utilizes nanometer-sized pigment particles that are electrically charged and suspended in a liquid that is sandwiched between two clear substrates that are coated with a transparent conductor oxide (TCO) film. *Figure 1.* In a non-energized state, the suspended pigment particles are distributed uniformly between the plastic films, and will absorb, transmit, or reflect light depending on the properties of the suspended pigment (dark state). When the proper electrical signal is applied to the conductive TCO layers, an electrical field is created, and the charged pigment particles collect in micro-embossed holes in a layer of polymer resin covering the transparent conductor surface. As the charged pigment particles are collected, the fluid becomes highly transparent (clear state). By applying a different electrical signal, the pigment can be dispersed back into the fluid to achieve the desired color density or opaqueness.

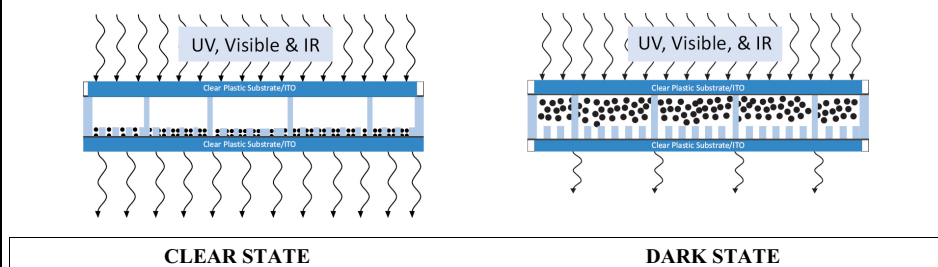


Figure 1. Schematic cross-section of electrokinetic film in clear and dark states.

Highlights

- **Clear Polyethylene Terephthalate (PET) Substrates** — Same material as window tinting films.
- **Transparent Conductor on PET** — Indium Tin Oxide (ITO) — same as most touch screens.
- **Electronic Ink** — Nanoparticles suspended in a fluid which absorb light.
- **Energy Source** — Nanoparticles are controlled through DC low voltage applied to the ITO conductor material which is powered by a lithium-ion battery that is charged with a solar cell strip, no hard-wiring necessary.

Our plastic films are manufactured using industry standard roll-to-roll (R2R) processing equipment. We believe our R2R processing will have an inherently lower manufacturing cost compared to sheet-based processing methods used for other smart window technologies like electrochromic glass. There are three basic steps to making our film using R2R equipment.

- 1) **Deposition:** R2R TCO deposition on clear polyethylene terephthalate (PET) plastic film using vacuum sputtering of indium-tin oxide (ITO). The ITO on PET film can be provided by a number of suppliers. Millions of square feet of ITO on PET are currently provided for nearly all capacitance-based display touch screens.
- 2) **Embossing:** R2R embossing of UV-curable resin in a proprietary and patent protected 3-D pattern for ink pigment control and containment on one of the two plastic films. An example of the embossed pattern is shown in *Figure 2*. The R2R embossing process can be completed by various plastic film companies. Crown has the capability to accomplish the coating and embossing steps within its current facility in addition to working with manufacturing partners.

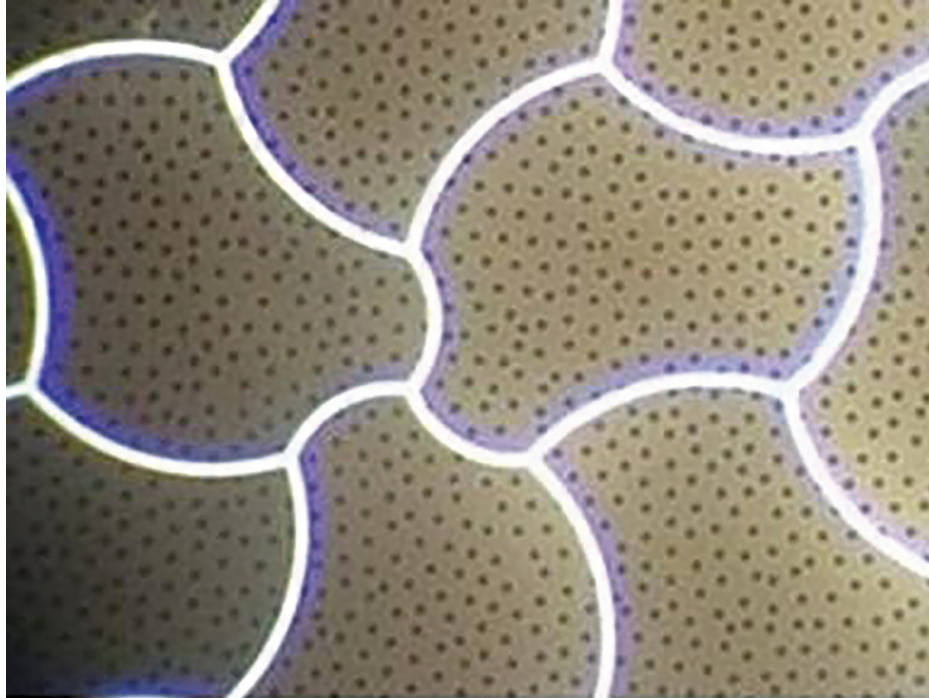


Figure 2. Microscopic Optical Image of Embossed Film

- 3) **Lamination:** The final R2R process laminates the two layers of PET together with the proprietary and patent protected pigment-containing fluid contained by the wall structure shown by the white areas in *Figure 2*. The wall area has adhesion to the upper layer of PET with ITO film thereby sealing the fluid between the two plastic layers. The fluid contains nanometer-sized pigment particles that are charged electrically and suspended in the fluid.

We believe that DynamicTint™ has the following distinct advantages over existing optical electronic film technologies:

- **Neutral Color** — Pigment is designed to be color neutral and will not affect the hue of what is viewed through the window in any clear, dark or tinted state.
- **Speed** — Transition time is typically a few seconds.
- **Affordability** — Roll-to-Roll film manufacturing using relatively inexpensive materials.
- **Low Energy Requirements** — Film is low voltage and can be powered with a small battery charged by a solar cell strip or wired to an existing electrical infrastructure including a LAN line.
- **Retro-Fit** — Film can be applied in a Smart Window Insert (“Inserts”), which can be placed within existing window frames, eliminating the needs for both window treatments or to replace single pane windows with dual pane windows.
- **Sustainable** — Reduces energy used to heat or cool a room via HVAC systems and can use renewable energy to transition the film.

Smart Window Insert powered by DynamicTint™

Our first product will be the Smart Window Insert powered by DynamicTint™ which is specifically designed for retrofitting in the domestic and international commercial real estate install base. Our DynamicTint™ can be laminated to other surfaces like heat-treated glass or acrylic and the laminated sheet can be assembled in Smart Window Inserts that can be placed into the interior side of the window frame providing the dynamic tinting capability as well as additional insulation and sound proofing to the existing windows (*Figure 3*).

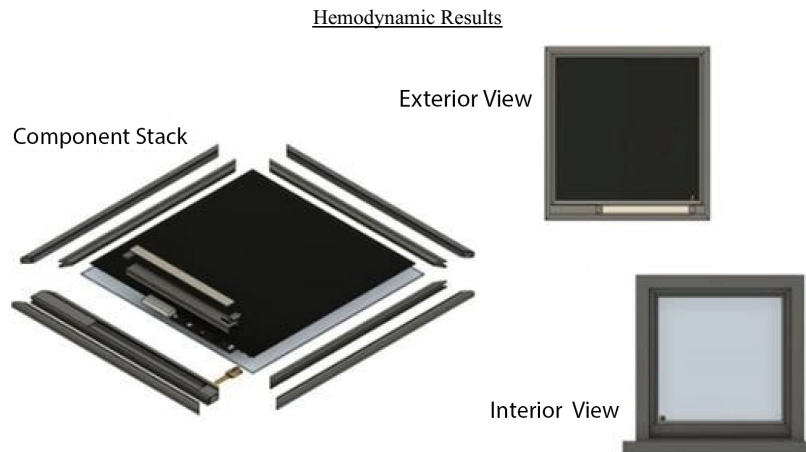


Figure 3. Window Insert with EK Film

The Insert is a custom-sized panel comprised of a rigid substrate (thin glass or acrylic) with a silicon compliant edge seal that allows for the insert to securely fit into the interior side of the window frame.

Some of the Insert’s features include:

- **Solar-powered** — eliminating the need to hardwire it into the building’s electrical system
- **Wirelessly enabled** — facilitating communication with all the other installed inserts and integration with the building’s management software system
- **Sensor equipped** — enabling the Insert to auto-sense the intensity of exterior light and interior ambient light

- **Software enabled** — can be managed via programmed macros, dynamically managed by the building, or user-controlled within an office
- **Data collection** — allowing optimization of the Inserts/curtain wall energy performance.
- **Lease vs Purchase** — Creative and flexible financing allows for customers to lease Inserts on a long-term basis and avoid large capital expenditures

We believe our Smart Window Inserts can be easily installed into commercial buildings, residential windows, skylights, and windows within garage doors. In commercial buildings, our Smart Window Inserts can be used to convert existing single pane windows into dual pane windows. We believe there is a significant opportunity to provide Smart Window Inserts to commercial building owners who are looking to eliminate window blinds, gain energy efficiency, and reduce carbon emissions.

Sustainability

Crown is aware that working towards building a sustainable future is a common goal shared by many. Companies such as Walmart (NYSE: WMT), Amazon (NASDAQ: AMZN) and Apple (NASDAQ: AAPL) are now publishing sustainability pledges, and we are seeing a trend of pledging to make their workplaces more environmentally friendly.

Crown's patented technology provides a solution that helps address many sustainability issues such as:

- **Reducing waste** — as opposed to replacing single pane window units with newly manufactured dual pane windows, Crown allows building owners to install our retrofit DynamicTint Insert into existing single pane window frames thereby creating a dual pane window;
- **Reducing energy** — Crown's Insert reduces HVAC energy consumption by reducing the need for constantly cooling and heating a room, reducing the customers carbon emissions. Initial field testing suggests HVAC energy savings of up to 26% could potentially result from the installation of Smart Window Inserts. According to FacilitiesNet (<https://www.facilitiesnet.com/windowsexteriorwalls/article/Smart-Window-Benefit-Energy-Savings-Reduced-Glare-17280>), the ability to control the amount of heat entering a building reduces the heat load of the building which in turn reduces your HVAC usage.;
- **Using renewable energy** — Crown's Smart Window Insert is low voltage and low wattage and can be powered by a solar strip that captures the sun's energy and is integrated into the Insert itself thereby eliminating the need to hardwire the Insert to the home or building's electrical system.

Another benefit of DynamicTint is being able to optimize daylight usage, thereby reducing the usage of lights. A study done by Project Drawdown (<https://www.drawdown.org/solutions/dynamic-glass>) projected that if 30 – 50% of commercial building spaces install dynamic glass, the potential climate-weighted energy efficiency from cooling is estimated at 9% and lighting at 9% — depending on local climate, building location and window orientation. This can result in 0.3 – 0.5 gigatons of emissions reductions from decreased energy use.

At Crown, we are committed to building a product that can be selfsufficient and does not require an additional power source or hard wiring into the electrical system of a residential home or commercial building. This ensures that as we reduce a building's energy consumption, we are not adding to it and are working towards being carbon neutral.

Intellectual Property

On January 31, 2016, we entered into an IP agreement with HP to acquire a research license to determine the feasibility of incorporating HP's electrokinetic display technology in our products. On February 4, 2021, Crown and HP entered into a fourth amendment to the agreement. Pursuant to such amendment, among other items, the parties agreed to amend the list of patent and patent applications, which includes two additional patents (the "HP Patents") that are assignable to us by HP upon the exercise of our option to acquire the HP Patents (the "Option"). In connection with our

exercise of the Option, we paid HP an aggregate amount equal to One Million Five Hundred Fifty Thousand Dollars (\$1,550,000) on February 9, 2021. From the date of the exercise of the Option until January 1, 2030, we agreed to pay to HP a royalty fee based on the cumulative gross revenue received by us from the HP Patents as follows:

Time Window	Lifetime Cumulative Gross Revenue	Royalty Rate
Prior to December 31, 2029	\$Less than \$70,000,000	0.00%
	\$70,000,000 – \$500,000,000	1.25%
	\$500,000,000 and beyond	1.00%
January 1, 2030 onward		0.00%

We entered into a Patent Assignment Agreement with International Business Machines Corporation (“IBM”) to acquire an ownership interest in assigned patents. As consideration for the patents, we paid \$264,000 (including legal fees of approximately \$38,000) on July 23, 2021.

In addition, we have current patent applications in the United States and other countries that if granted, would add three additional patents to its portfolio. Our United States patents expire at various dates from March 26, 2028 through March 10, 2036.

A 2022 appraisal of Crown’s intellectual property by one of the preeminent third-party IP-valuation firms indicated a total valuation of approximately \$94 million, consisting of \$35 million relating to patents (limited to the US office building market, supplying its Smart Window Insert) and \$59 million for trade secrets.

We believe that its EK technology is adequately protected by its patent position and by its proprietary technological know-how. However, the validity of our patents has never been contested in any litigation. We also possess know-how and relies on trade secrets and nondisclosure agreements to protect its technology. We require any employee, consultant, or licensee having access to its confidential information to execute an agreement whereby such person agrees to keep such information confidential.

Crown-Owned Patents

Country	Filing Date	Publication No.	Title				
USA	28-Jan-19	11174328	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
China	28-Jan-19	CN111918894A	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
Europe	28-Jan-19	3752867	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
Japan	28-Jan-19	JP 2021514422A	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
Korea	28-Jan-19	KR 20200122333A	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
WO	28-Jan-19	WO 2019/160675	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
USA	16-Feb-18		REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS				
USA	13-Jan-20	2020-0225552	APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM				
WO	13-Jan-20	WO2020/150166	APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM				
USA	16-Jan-19		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM				
EPO	23-Jun-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM				
CN	8-Jul-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM				

Country	Filing Date	Publication No.	Title
Korea	5-Jul-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
JP	15-Jul-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
USA	7-Jul-16	10377909	INKS INCLUDING SEGMENT COPOLYMER GRAFTED PIGMENTS VIA AZIDE CHEMISTRY
USA	22-Nov-10	8179590	ELECTRO-OPTICAL DISPLAY
USA	29-Jul-10	8054535	ELECTROPHORETIC DISPLAY DEVICE
USA	23-Aug-17	10852615*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
EPO	2-Dec-15	3256903*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS
EPO	2-Dec-15	3250962*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
USA	23-Aug-17	10656493*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS
USA	30-Nov-20	2021-0108463*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
WO	2-Dec-15	WO2016/089957*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS
WO	2-Dec-15	WO2016/089974*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
USA	18-Dec-14	9567995	WINDOW OPACITY ATTENUATION USING MICROFLUIDIC CHANNELS
USA	18-Aug-15	9816501	WINDOW OPACITY ATTENUATION USING MICROFLUIDIC CHANNELS
USA	9-Mar-18	10926859	SMART WINDOW ACTIVATION TO PREVENT LASER DISTURBANCE
USA	10-May-18	10935818	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
USA	26-Oct-16	10106018	AUTOMATED WINDSHIELD GLARE ELIMINATION ASSISTANT
USA	2-Sep-16	10144275	ENVIRONMENTAL CONTROL IN VEHICLES
GB	2-May-19	2586760	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
CN	2-May-19	CN111936331A	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
DE	2-May-19	112019000749	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
JP	2-May-19		EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
PCT	2-May-19	WO2019/215544**	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
USA	11-Oct-21	11578150	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
USA	24-Feb-22		WINDOW SYSTEM AND METHOD UTILIZING A WINDOW PANE ASSEMBLY AND LOCKING SYSTEM FOR EASY INSERTION OF A WINDOW PANE ASSEMBLY WITH ELECTRONICALLY CONTROLLABLE SCALABLE APERTURES FOR ATTENUATING OR OTHERWISE MODULATING LIGHT TRANSMISSION THROUGH SAID ASSEMBLY

Country	Filing Date	Publication No.	Title
USA	24-Feb-22		WINDOW SYSTEM AND METHOD UTILIZING A WINDOW PANE ASSEMBLY AND LOCKING SYSTEM FOR EASY INSERTION OF A WINDOW PANE ASSEMBLY WITH ELECTRONICALLY CONTROLLABLE SCALABLE APERTURES FOR ATTENUATING OR OTHERWISE MODULATING LIGHT TRANSMISSION THROUGH SAID ASSEMBLY
USA	29-Mar-22		SELF-ALIGNING MASTER AREA MULTIPLICATION FOR CONTINUOUS EMBOSSED
USA	11-Sep-22		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
USA	22-Jul-14		INKS INCLUDING SEGMENT COPOLYMER GRAFTED PIGMENTS VIA AZIDE CHEMISTRY (recently assigned to Crown)
USA	10-Feb-23		REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
PCT	23-Feb-23		WINDOW SYSTEM AND METHOD UTILIZING A WINDOW PANE ASSEMBLY AND LOCKING SYSTEM FOR EASY INSERTION OF A WINDOW PANE ASSEMBLY WITH ELECTRONICALLY CONTROLLABLE SCALABLE APERTURES FOR ATTENUATING OR OTHERWISE MODULATING LIGHT TRANSMISSION THROUGH SAID ASSEMBLY

* Co-owned with University of Cincinnati

* Inactive

In-Licensed Patents

Patent No.	Country	Patent Date	Publication No.	Status	Title
8,183,757	USA	22-May-12		Issued	DISPLAY ELEMENT
8,184,357	USA	22-May-12		Issued	DISPLAY ELEMENT
8,331,014	USA	11-Dec-12		Issued	PIGMENT-BASED INKS
8,384,659	USA	26-Feb-13		Issued	DISPLAY ELEMENT INCLUDING ELECTRODES AND A FLUID WITH COLORANT PARTICLES
8,432,598	USA	30-Apr-13		Issued	TRANSPARENT CONDUCTOR STRUCTURE
8,896,906	USA	25-Nov-14		Issued	INKS INCLUDING BLOCK COPOLYMER GRAFTED PIGMENTS VIA AZIDE CHEMISTRY
8,018,642	USA	13-Sep-2011		Issued	ELECTRO-OPTICAL DISPLAY

Business Model

We intend to manufacture our patented EK Technology under the name DynamicTint™. We intend to generate revenue by selling our Smart Window Inserts powered by DynamicTint™ to our customers.

Crown's first product will be the Smart Window Insert powered by DynamicTint™ for retrofitting in commercial buildings. Crown's Smart Window Inserts will allow the building owner to quickly convert a single pane window unit to a dual pane window unit. Crown's Inserts will act as the "second pane" and will allow the building owner to enjoy all the benefits of a dual pane window without having to replace their existing single pane windows.

Crown's customers will be able to buy and own their Smart Window Inserts but also, at some stage, have the option to enter long-term leases of the Inserts with Crown. Additional applications we are exploring with potential customers of Crown's DynamicTint include:

- Smart Window Inserts for retrofitting of commercial buildings in markets outside the United States.
- Smart Window Inserts for retrofitting of multi-family buildings.

- Residential homes: residential windows, garage door windows, windows contained in and surrounding residential front doors as well as residential skylights.
- Automotive: sunroofs.

As Crown's DynamicTint technology requires very little energy to effect that transition from clear to dark state, a rechargeable battery coupled with a built-in solar cell eliminates the need to hardwire the inserts to the building electrical system. Crown believes that the potential retrofit market for its Smart Window Inserts is significantly large. Each unit will have wireless communication capability for control of the film and communication with the building HVAC system.

Crown has also developed a working prototype of an insert for the residential skylight, which allows a homeowner to control the amount of light entering the room. Crown's DynamicTint Insert does not require the homeowner to replace their skylight as it conveniently fits into the existing frame. Crown's skylight insert will allow a homeowner (through a Bluetooth connection or RF controller) to adjust the level of desired tint easily and quickly, thereby controlling the amount of light and heat entering the room. The DynamicTint Skylight Insert will be powered by a rechargeable lithium battery and built-in solar cell thereby eliminating the need to wire the insert to the home's electrical system.

Partners and Customers

On March 25, 2022, Crown executed a Master Supply Agreement (the "BDN MSA") with Brandywine Operating Partnerships L.P. to install its Smart Window Inserts powered by DynamicTint™ in Brandywine office buildings. The BDN MSA provides the master terms and conditions under which purchase orders will be executed for Crown to supply units to retrofit windows at certain locations.

On December 27, 2021, Crown executed a Master Supply Agreement (the "HPP MSA") with Hudson Pacific Properties L.P. for the installation of Crown's energy saving Smart Window Inserts in several office properties across its West Coast portfolio. The HPP MSA provides the master terms and conditions under which purchase orders will be executed for Crown to supply units to retrofit windows at certain locations.

Prior to this, on September 27, 2021, Crown had entered into a Master Supply Agreement with MetroSpaces Inc., Crown's first commercial customer, install its Smart Window Inserts in MetroSpaces' 70,000 square -foot Houston, Texas office building.

In the future, Crown and its customers may enter into multiple specific transactions by executing purchase orders for additional buildings.

Additionally, discussions with multiple other building owners to buy Crown Smart Window Inserts are progressing as the regulatory and consumer pressure to reduce the level of energy consumption and carbon emissions continues to build.

Purchase Orders

On August 12, 2022, the Company entered into two Purchase Orders (PO's) with Hudson Pacific Properties, L.P. ("Hudson") for the purchase of the Company's Smart Window Inserts™ ("Inserts"). Hudson is a unique provider of end-to-end real estate solutions for tech and media tenants. The PO's have a value of \$85,450 and represent the first orders the Company has received prior to the launch of its Inserts. Delivery and installation are expected to begin in Q4 2023.

On August 12, 2022, as additional consideration for the PO's, the Company issued a warrant to Hudson to purchase 300,000 shares of the Company's Common Stock at \$0.75 per share. The warrant has a five year life and expires on August 12, 2027.

Manufacturing

Crown is developing its manufacturing capabilities to meet anticipated demand for the Smart Window Insert at its facilities located in Corvallis, Oregon, for film production, and Salem, Oregon, for Smart Window Insert manufacturing.

Crown plans to produce its EK film at its facilities in Corvallis using its existing roll to roll (the “R2R”) embossing equipment. We intend to perform all other film manufacturing processes at our Corvallis facility upon receipt of additional manufacturing equipment currently ordered and awaiting delivery.

Crown’s Smart Window Inserts will be produced at our Salem facility, where EK film will be laminated to glass, and then assembled into a frame. The inserts electronic components will also be integrated into the insert and the final assembled inserts will be packaged for shipment from Salem to our customers’ buildings.

The completion of Crown’s facilities in Corvallis and Salem marks our transition to being completely self sufficient in manufacturing our products, eliminating any dependency on contract manufacturers or partners.

Commercial Office Building Market

Commercial buildings have gotten larger in the United States as their floorspace continues to grow faster than the number of commercial buildings, according to preliminary results from the U.S. Energy Information Administration’s (EIA) 2018 *Commercial Buildings Energy Consumption Survey* (CBECS). CBECS estimates that 5.9 million U.S. commercial buildings contained a total of 97 billion square feet as of 2018. The number of commercial buildings increased by 6%, and commercial square footage increased by 11% since the CBECS was last conducted in 2012.

Smart Glass Industry Trends

We believe there are favorable converging global trends in the major near-term markets for “smart glass” products. Key factors driving the growth of the smart glass market are the growing demand for smart glass for energy savings for existing commercial and residential buildings. Added to this trend are government mandates and legislation for energy-efficient construction of both commercial and residential buildings. There is a growing opportunity for smart windows in the transportation industry including automobiles, commercial trucks, buses, and passenger rail cars.

In both public and private sectors across the world, there are substantial efforts targeted toward the promotion and use of energy efficient smart glass materials, including those used in automobiles, windows and other architectural glazings.

In September 2020, Markets and Markets issued *Smart Glass Market with COVID-19 Impact by Technology (Suspended Particle Display, Electrochromic, Liquid Crystal), Application (Architecture, Transportation, Consumer Electronics), and Geography — Global Forecast to 2025*. The smart glass market size is expected to grow from \$3.8 billion in 2020 to \$6.8 billion by 2025, at a CAGR of 12.1% during the forecast period. The growth of the smart glass industry is driven by factors, such as the growing adoption of smart glass in automotive application and, declining prices for electrochromic material. Other major driving factors for smart glass adoption include supportive government mandates and legislation on energy efficiency. Governing bodies of various countries are increasingly encouraging the use of these energy-efficient products.

Smart glass has inherent energy-saving and auto-dimming properties, which reduces its maintenance cost. As a result, the perceived benefits of these glass products are more than the incurred investments.

Crown believes that the smart glass industry is in the initial phase of growth and that DynamicTint™ may have commercial applicability in many products where variable light-control is desired.

Our Technology

DynamicTint™ combines many of the favorable properties of the other smart window technologies. It has fast-switching time and unlike electrochromic (EC) technology, modulation in light level is not area dependent and the film is neutral in color in all settings. Unlike Suspended Particles Devices (SPD) and Polymer Dispersed Liquid Crystal (PDLC) technology, EK film does not need high voltage alternating current to power the film. Because of the low power requirements, EK films can be powered with batteries or combined with small area solar cells, allowing retrofit to existing windows. Furthermore, in the future, EK film could be made with other colorants and it is possible with modification to the design to use two colorants in the same film, which has been demonstrated in the recent past under a research project at the University of Cincinnati. Below is a table outlining some of the typical properties of each technology.

Other Smart Glass Technologies

Variable light transmission technologies can be classified into two basic types: “active” technologies that can be controlled electrically by the user either automatically or manually, and “passive” technologies that can only react to ambient environmental conditions such as changes in lighting or temperature. Most of the technologies are “active”. One type that is passive is thermochromic technology where a rise in temperature will darken the film applied to glass.

We believe that our DynamicTint has certain performance advantages over other “smart glass” technologies and that pricing and product performance are the two main factors critical to the adoption of smart glass products. Because the non-EK smart glass technologies listed below do not have published, consistent pricing or cost data that can be relied upon, we cannot accurately report our price position relative to these other technologies. In terms of product performance, we believe that DynamicTint offers numerous advantages over other smart glass technologies, as discussed below.

Technology	Can Retrofit	Power Usage	Can Tint to Black	Solar or Battery Powered	Tint Transition Speed	Light Transmission
DynamicTint™ (Electrokinetic)	P	<0.01 W/M2	P	P	approx. 4 sec	3.0% – 70% or 0.4 % – 50%
Electrochromic (EC)	↑	0.3 – 2 W/M2 (30X EK)	↑	↑	5 – 40 min	<1% – 58%
Suspended Polymers in Particles (SPD)⁽¹⁾	↑	1.1 W/M2 at 100V/50hz (110X EK)	↑	↑	<3 sec	0.8% – 55%
Polymer Dispersed Liquid Crystal (PDLC)	↑	5 – 20 W/M2 (500X EK)	↑	↑	1 – 3 sec	~80%

Ref. (1): SPD Film — LCF-1103DHA90 Showa Denko Material Co.

Electrochromic Glass

Electrochromic (EC) glass technology has been used as a light absorbing technology for rear view mirrors in automobiles for decades, and more recently for large-scale windows. However, the EC technology developed for windows is based on a different set of materials that are directly deposited on the heat-treated glass panels. All of the current EC companies use tungsten oxide as the main component involved in the color transition from clear to blue. Because of the nature of the chemical transition of tungsten oxide, EC film does not absorb as much of the blue light, so remaining light will have a strong blue hue both in the room and when looking through the window. The speed of the switching time from dark to light vice versa is directly related to the size of the window area and the electrode design which brings electrical current to the EC material to start the chemical transition. EC technology is basically a battery-like material that requires “charging and discharging”. The time to charge/discharge the EC material in a large window can take up to 40 minutes to change form the dark state to the clear state at nominal temperatures. Also, during switching of the EC film, there can be non-uniform areas which can vary in level of tint from center to edge. The larger the area of the window, the more non-uniform during the change of state. Longer switching time can minimize the non-uniform areas. The EC materials are typically vacuum deposited directly on “defect-free” glass. The typical investment required for a large window electrochromic factory can run into the hundreds of millions of dollars, due to the large-scale vacuum equipment required, low particulate cleanroom required, and the relatively slow speed of deposition for all the various layers. Halio, formerly Kinestral Technologies, is using a chemical liquid deposition technique to replace some of the vacuum deposition steps to lower the capital investment needed for manufacturing.

Suspended Particle Glass (SPD)

SPD is a film that has suspended long and narrow particles in an encapsulated liquid polymer film with layers of ITO on either side to allow generation of an alternating current electrical field to twist the particles from a random state to a near vertical state perpendicular to the ITO plane. In the vertical state light passes through the film and in the random state the light is absorbed by the particles. The color of the film is blue since the particles used in the film do not absorb

blue light as well as other colors of sunlight. No other types of particles have been created for this type of device. The film responds quickly to the electrical field, however, requires constant high AC voltage to hold the clear state. The film is manufactured on plastic and uses roll-to-roll (R2R) equipment processing. Also, because the particles are aligned when in the clear state, the film has a limited viewing angle much like older liquid-crystal displays. When viewed at a side angle, the film will appear darker. The current market for SPD has been mainly automobile sunroofs where the viewing angle of the passengers is relatively fixed at nearly perpendicular angle to the SPD film.

Polymer-Dispersed Liquid Crystal (PDLC) Film

PDLC requires an AC electric field like the SPD film described above to achieve a clear state. However, the liquid-crystal based film can only scatter light in the power-off state, therefore, most of the incoming light is transmitted through the film (~80%). Typically, the PDLC film is used for interior windows or doors to create privacy. PDLC has similar manufacturing methods using R2R equipment and plastic film with ITO conductor to the SPD film. The film is available from many Far East manufacturing companies with some able to make ~150 cm width film. The quality of the film can vary based on the manufacturing company. The film was invented at Kent State University in the 1980's and the patents have expired.

Competition

Several smart glass competitors have an operating history, including:

- SAGE Electrochromic, Inc., a wholly owned subsidiary of Saint-Gobain, which develops and manufactures electrochromic glass;
- View Glass [NASDAQ: VIEW] and Halio, formerly Kinestral Technologies, manufacture electrochromic glass at their purpose-built manufacturing facilities and both are headquartered in California; and
- Research Frontiers, Inc. [NASDAQ: REFR] licenses an electronically controlled tinted film, utilizing SPD technology, to various companies.

Crown Electrokinetics expects that other competitors will emerge in the future.

Research and Development

Crown has been using a 6" width R2R equipment capable of handling the deposition, embossing and lamination steps of the manufacturing process for its research and development. Crown will utilize the 12" width film for the first-generation Smart Window Insert. Larger scale manufacturing is planned at a minimum of 36" width film to address markets including appropriately sized commercial building window inserts, larger format skylights inserts, and many automobile sunroofs. Thereafter, Crown will develop capability to manufacture DynamicTint film of at least 72" width capability. This will allow Crown to address the vast majority of window sizes for most applications.

As a result of our research and development efforts, we believe that our EK technology is now, or with additional development will become, usable in a number of commercial products. Such products may include one or more of the following fields: "smart" windows, doors, skylights and partitions; self-dimmable automotive sunroofs, windows, sun visors, and mirrors.

We have devoted most of our financial resources to research and development activities with the goal of producing commercially viable EK products and has developed working samples of our EK technology.

Crown's main goals in its research and development include:

- developing wider ranges of light transmission,
- reducing the voltage required to operate DynamicTint™,
- obtaining data and developing improved materials regarding environmental stability and longevity, and
- quantifying the degree of energy savings expected by users of our technology.

Crown Fiber Optics

On January 3, 2023, we acquired substantially all of the assets (the “Asset Acquisition”) of Amerigen 7 LLC (“Amerigen”), which was engaged in the business of construction of 5G fiber optics infrastructure, for cash consideration of approximately \$0.65 million. The Asset Acquisition included approximately 12 employees, customer contracts, and certain operating liabilities. On December 20, 2022, we incorporated our wholly-owned subsidiary Crown Fiber Optics Corp. (“Crown Fiber Optics” or “we”) in Delaware, to own and operate the business acquired from Amerigen.

Crown is a new entrant in providing contracting services to the fiber optics and telecommunications infrastructure industry throughout the United States. Since our entrance into the construction of fiber optic networks, we have expanded our scope and service offerings organically and through one acquisition. Today, Crown is focused on providing construction services to the fiber optic industry. We are focused on adding management depth to expand our industry knowledge, to develop strong customer relationships, and to hire and retain a skilled workforce.

Crown’s fiber optic operating division supplies telecommunications providers with a comprehensive portfolio of specialty services, including program management; planning; engineering and design; aerial, and underground fiber construction.

Construction, Maintenance, and Installation Services. We provide a range of construction, maintenance, and installation services, including the placement and splicing of fiber, copper, and coaxial cables. We excavate trenches to place these cables; place related structures, such as poles, anchors, conduits, manholes, cabinets, and closures; place drop lines from main distribution lines to a consumer’s home or business; and maintain and remove these facilities. We provide these services for both telephone companies, internet service providers and cable multiple system operators in connection with the deployment, expansion, or maintenance of new and existing networks. We can also provide tower construction, lines and antenna installation, foundation and equipment pad construction, small cell site placement for wireless carriers, and equipment installation and material fabrication and site testing services. In addition, we provide underground facility locating services for telecommunications providers. Our underground facility locating services include locating telephone, cable television, power, water, sewer, and gas lines.

Fiber Optics Business Strategy

Capitalize on Long-Term Growth Drivers. We are positioned to benefit from the increased demand for network telecommunications bandwidth that is necessary to ensure reliable video, voice, and data services. Developments in consumer and business applications within the telecommunications industry, including advanced digital and video service offerings, continue to increase demand for greater wireline and wireless network capacity and reliability. Telecommunications network operators are increasingly deploying fiber optic cable technology deeper into their networks and closer to consumers and businesses in order to respond to consumer demand, competitive realities, and public policy support. Additionally, wireless carriers are upgrading their networks and contemplating next generation mobile solutions in response to the significant demand for wireless broadband, driven by the proliferation of smart phones, mobile data devices and other advances in technology. Increasing wireless data traffic and emerging wireless technologies are United States. Furthermore, significant consolidation and merger activity among telecommunications providers could also provide increased demand for our services as networks are integrated.

Selectively Increase Market Share. We believe our reputation for providing high quality services and the ability to provide those services nationally creates opportunities to expand market share. Our operating structure and multiple points of contact within customer organizations positions us favorably to win new opportunities and maintain strong relationships with our customers.

We recently purchased five micro trenchers to gain a strategic advantage over other companies competing in our market. Micro trenching is a technique to place fiber optic cables underground and is gaining acceptance across multiple markets. Micro trenchers are difficult to obtain as the demand for the equipment is significant. We have a commitment from our equipment vendor for an additional 15 micro trenchers. We believe this advantage will allow Crown to gain market share and market advantage over its competitors.

Pursue Selective Acquisitions. We may pursue acquisitions that are operationally and financially beneficial for the Company as they provide incremental revenue, geographic diversification, and complement existing operations. We generally target companies for acquisition that have defensible leadership positions in their market niches, the opportunity to generate profitability that meets or exceeds industry averages, proven operating histories, sound management and certain clearly identifiable cost synergies.

Fiber Optics Customer Relationships

We have recently established relationships with many leading telecommunications providers, including telephone companies, cable multiple system operators, wireless carriers, and telecommunication equipment and infrastructure providers. Our customer base is primarily concentrated in the Great Lakes region and the West Coast. We believe that a substantial portion of our total contract revenues and operating income will continue to be generated from a concentrated group of customers and that the identity and proportion of our contract revenues arising from our work for our top customers will fluctuate.

We perform a significant amount of our services under master service agreements and other contracts that contain customer-specified service requirements. These agreements include discrete pricing for individual tasks. We generally possess multiple agreements with each of our significant customers. To the extent that such agreements specify exclusivity, there are often exceptions, including the ability of the customer to issue work orders valued above a specified dollar amount to other service providers, the performance of work with the customer's own employees, and the use of other service providers when jointly placing facilities with another utility. In most cases, a customer may terminate an agreement for convenience. Historically, multi-year master service agreements have been awarded primarily through a competitive bidding process; however, occasionally we are able to negotiate extensions to these agreements. We provide the remainder of our services pursuant to contracts for specific projects. These contracts may be long-term (with terms greater than one year) or short-term (with terms less than one year) and often include customary retainage provisions under which the customer may withhold 5% to 10% of the invoiced amounts pending project completion and closeout.

Fiber Optics Cyclicalities and Seasonality

The cyclical nature of the industry we serve affects demand for our services. The capital expenditure and maintenance budgets of our customers, and the related timing of approvals and seasonal spending patterns, influence our contract revenues and results of operations. Factors affecting our customers and their capital expenditure budgets include, but are not limited to, overall economic conditions, including the cost of capital, the introduction of new technologies, our customers' debt levels and capital structures, our customers' financial performance, and our customers' positioning and strategic plans. Other factors that may affect our customers and their capital expenditure budgets include new regulations or regulatory actions impacting our customers' businesses, merger or acquisition activity involving our customers, and the physical maintenance needs of our customers' infrastructure.

Our operations exhibit seasonality and may be impacted by adverse weather changes as we perform a significant portion of our work outdoors. Consequently, adverse weather, which is more likely to occur with greater frequency, severity, and duration during the winter, as well as reduced daylight hours, impact our operations during the fiscal quarters ending in December and March. Additionally, extreme weather conditions such as major or extended winter storms, droughts and tornados, and natural disasters, such as floods, hurricanes, tropical storms, whether as a result of climate change or otherwise, could also impact the demand for our services, or impact our ability to perform our services.

Fiber Optics Competition

The specialty contracting services industry in which we operate is highly fragmented and includes a large number of participants. We compete with several large multinational corporations and numerous regional and privately owned companies. In addition, a portion of our customers directly perform many of the same services that we provide. Relatively few barriers to entry exist in the markets in which we operate. As a result, any organization that has adequate financial resources, access to technical expertise, and the necessary equipment may become a competitor and the degree to which an existing competitor participates in the markets that we operate may increase rapidly. The principal

competitive factors for our services include geographic presence, quality of service, worker and general public safety, price, breadth of service offerings, and industry reputation. We believe that we compare favorably to our competitors when evaluated against these factors.

Fiber Optics Organization

We believe that our employees are our most important resources and are critical to our continued success. We focus significant attention on attracting and retaining talented and experienced individuals to manage and support our operations. We offer our employees a broad range of company-paid benefits, and we believe our compensation package and benefits are competitive with others in our industry. We are committed to hiring, developing and supporting a diverse and inclusive workplace.

Each employee, officer and director of the Company must adhere to the highest standards of business ethics when dealing with each other and with customers, suppliers and all other persons as outlined in our “Code of Ethics”. The Code of Ethics requires all employees to conduct all business dealings with honesty and candor and with respect for the law and the highest standard of ethical behavior. Personal integrity, good faith and fair dealing, the respectful treatment of others, and all other attributes of good behavior are essential for our employees, but special responsibility to uphold these values rests on our officers, managers and supervisors as they establish the climate for all other employees. Officers, managers and supervisors are required to create a work environment that encourages employees to discuss concerns without fear of retaliation. Should potential violations of the Code of Ethics or the law occur, employees are encouraged to voice concerns promptly and are reminded that retaliation against anyone who reports a potential violation in good faith will not be tolerated. All employees are required to complete the training on the Code of Ethics, and we report material matters related to the Code of Ethics to the Audit Committee of our Board.

The success of our business is fundamentally connected to the safety and wellbeing of our people. We are committed to instilling safe work habits through proper training and supervision of our employees and expect adherence to safety practices that ensure a safe work environment. Our safety programs require employees to participate both in safety training required by law and training that is specifically relevant to the work they perform. Safety directors review incidents, examine trends, and implement changes in procedures to address safety issues.

Our Board of Directors, through our Compensation Committee and our Corporate Governance Committee, provides oversight on employee matters. The Compensation Committee receives updates on activities, strategies and initiatives related to the compensation and retention of our employees, and our Corporate Governance Committee oversees environmental, social and human capital matters, as well as the development and succession planning of senior management.

Fiber Optics Subcontractors and Materials

We may contract with subcontractors to perform a significant amount of our work and to manage fluctuations in work volumes and to reduce the amount we expend on fixed assets and working capital. These subcontractors are typically small, privately owned companies that provide their own employees, vehicles, tools and insurance coverage. No individual subcontractor is financially significant to the Company.

For a majority of the contract services we perform, we are provided the majority of the required materials by our customers. Because our customers retain the financial and performance risk associated with materials they provide, we do not include the costs associated with those materials in our contract revenues or costs of earned revenues. Under contracts that require us to supply part or all of the required materials, we typically do not depend upon any one source for those materials.

Risk Management and Insurance

Claims arising in our business generally include workers’ compensation claims, various general liability and damage claims, and claims related to motor vehicle collisions, including personal injury and property damage. For claims within our insurance program, we retain the risk of loss, up to certain limits, for matters related to automobile liability, general liability (including damages associated with underground facility locating services), workers’ compensation, and employee group health. Additionally, within our aggregate coverage limits and above our base layer of third-party insurance coverage, we have retained the risk of loss at certain levels of exposure. We carefully monitor claims and actively participate with our insurers and our third-party claims administrator in determining claims estimates and

adjustments. We accrue the estimated costs of claims as liabilities and include estimates for claims incurred but not reported. Due to fluctuations in our loss experience from year to year, insurance accruals have varied and can affect our operating margins. Our business could be materially and adversely affected if we experience an increase of insurance claims at certain amounts, or in excess of our coverage limits.

Regulation

We are subject to various federal, state, and local government regulations, including laws and regulations relating to environmental protection, work-place safety, and other business requirements.

Environmental. A significant portion of the work we perform is associated with the underground networks of our customers and we often operate in close proximity to pipelines or underground storage tanks that may contain hazardous substances. We could be subject to potential material liabilities in the event we fail to comply with environmental laws or regulations or if we cause or are responsible for the release of hazardous substances or cause other environmental damages. In addition, failure to comply with environmental laws and regulations could result in significant costs including remediation costs, fines, third-party claims for property damage, loss of use, or personal injury, and, in extreme cases, criminal sanctions.

Workplace Safety. We are subject to the requirements of the federal Occupational Safety and Health Act (“OSHA”) and comparable state statutes that regulate the protection of the health and safety of workers. Our failure to comply with OSHA or other workplace safety requirements could result in significant liabilities, fines, penalties, or other enforcement actions and affect our ability to perform the services that we have been contracted to provide to our customers.

Business. We are subject to a number of state and federal laws and regulations, including those related to utility oversight contractor licensing and the operation of our fleet. If we are not in compliance with these laws and regulations, we may be unable to perform services for our customers and may also be subject to fines, penalties, and the suspension or revocation of our licenses.

Crown Electrokineitics Employees and Human Capital

We have 33 employees; 28 of the employees are construction, technical and operational personnel, and the rest perform business development, finance, marketing, investor relations, and administrative functions. Crown’s employees have extensive industrial experience in leading technology, ink-based manufacturing and 5G construction companies. We believe that our success is dependent upon, among other things, the services of our senior management, the loss of which could have a material adverse effect upon our prospects. None of our employees are represented by a labor union or covered by a collective bargaining agreement.

As Crown continues to grow, we will add additional construction, manufacturing engineering, marketing, and administrative personnel.

Corporate Information

Our primary business location is the R&D and Manufacturing facility located at 1110 NE Circle Blvd., Corvallis, OR 97330. We also have an office located at 11601 Wilshire Blvd., Suite 2240, Los Angeles, CA 90025. Our telephone number is +1 (213) 660-4250, our e-mail address is info@crownek.com, and our Internet website address is www.crownek.com. We were incorporated in the State of Delaware on April 20, 2015.

Properties

On March 8, 2016, the Company entered into a lease agreement with Oregon State University, to lease 1,700 square feet of office and laboratory space located at HP Campus Building 11, 1110 NE Circle Blvd, Corvallis, Oregon, for approximately \$400 monthly. On July 1, 2016, the Company entered into the first amendment to the lease agreement which increased the monthly lease expense to approximately \$1,200. On October 1, 2017, the Company entered into a sublease agreement, which provides for additional office space and the monthly lease payment increased to approximately \$1,800. The lease expired on June 30, 2018 and the Company extended the lease through June 30, 2019. The monthly lease payment increased to approximately \$4,500 for the months ended June 30, 2018 through November 30, 2018, and increased to approximately \$7,550 for the months ended December 31, 2018 through June 30,

2019. On July 1, 2019, the Company entered into the fourth amendment to its lease with Oregon State University, which extends the lease expiration date to June 30, 2022. On July 1, 2020, the Company entered into the fifth amendment to its lease with Oregon State University which adjusts the Operating Expense Reimbursement payment due dates from monthly to quarterly, with the payments due in advance on the first of July, October, January and April. Effective July 1, 2020, the quarterly operating expense will be \$23,097. On September 1, 2021, the Company entered into the seventh amendment which expanded the lease to include approximately 703 square feet of lab space, 576 square feet of cubicle space, 1096 square feet of Highbay lab space, and 376 square feet of High bay storage space in a building commonly known as Building 11. Effective September 1, 2021, the quarterly operating expense will be \$31,647 covering all utility and facility tooling costs. On January 24, 2022, the Company entered into the eighth amendment which expands the lease to include approximately 703 square feet of lab space, 768 square feet of cubicle space, 2,088 square feet of Highbay lab space, and 376 square feet of High bay storage space in a building commonly known as Building 11. Effective January 24, 2022, the quarterly operating expense will be \$44,252 covering all utility and facility tooling costs. The sublease expires June 30, 2025. On January 20, 2023, the Company entered into the ninth amendment to its lease with Oregon State University which reduces the amount of cubicle space from 768 square feet to 288 square feet. Effective January 20, 2023 the quarterly operating expense will be \$41,323 covering all utility and facility tooling costs.

On March 4, 2021, the Company entered into a lease agreement with Hudson 11601 Wilshire, LLC, to lease 3,500 square feet of office space located in Los Angeles, California. The lease term is 39 months and expires on June 30, 2024. The monthly lease expense is as follows:

• Months 1 – 12	—	\$18,375
• Months 13 – 24	—	\$19,018
• Months 25 – 36	—	\$19,683
• Months 37 – 39	—	\$20,372

The Company paid a security deposit totaling \$20,373 at lease inception date.

On May 4, 2021, we entered into a lease agreement with HP Inc. to lease office and lab space located in Corvallis, Oregon. The lease term is 5 years and the lease commencement date is April 1, 2021. The monthly lease expense is \$7,388 and increases by 3% on each anniversary of the lease commencement date. We will pay a security deposit totaling \$8,315. We have the option to extend the lease for an additional 5 years. On January 26, 2022, the Company entered into the first amendment to its lease with HP Inc., which amends the lease commencement date to January 26, 2022 and the lease expiration date to January 31, 2027.

We believe that our facilities are adequate to meet our needs for the immediate future and that, should it be needed, we will be able to secure additional space to accommodate the expansion of our operations.

Legal Proceedings

From time to time, we are also involved in various other claims and legal actions that arise in the ordinary course of business. Although the results of litigation and claims cannot be predicted with certainty, we do not believe that the ultimate resolution of these actions will have a material adverse effect on our financial position, results of operations, liquidity or capital resources.

Future litigation may be necessary to defend ourselves and our partners by determining the scope, enforceability and validity of third party proprietary rights or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

THE OFFERING

Shares of Common Stock offered by us	Up to [] shares of Common Stock on a “best efforts” basis.
Warrants offered by us	Each share of Common Stock is being sold together with an accompanying Warrant to purchase [one] share of Common Stock. The Warrants will be exercisable at an exercise price of \$ per share (% of the combined public offering price of the shares of Common Stock and accompanying Warrants), will be immediately exercisable and will expire on the fifth anniversary of the original issuance date. This offering also relates to the shares of Common Stock issuable upon exercise of the Warrants. The Warrants may be exercised on a cashless basis if there is no effective registration statement registering the shares of Common Stock underlying the Warrants. See “ <i>Description of the Securities That We Are Offering — Warrants</i> ” on page 48 of this prospectus.
Pre-Funded Warrants offered by us	We are also offering to certain purchasers whose purchase of our Common Stock in this offering would otherwise result in the purchaser, together with its affiliates, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) (the “Beneficial Ownership Limitation”) of our outstanding shares of Common Stock immediately following the consummation of this offering, the opportunity to purchase Pre-Funded Warrants in lieu of Common Stock that would otherwise result in any such purchaser’s beneficial ownership exceeding the applicable Beneficial Ownership Limitation. Each Pre-Funded Warrant will be exercisable for one share of Common Stock. The purchase price of each Pre-Funded Warrant and the accompanying Warrant will equal the price at which the Common Stock and the accompanying Warrant are being sold to the public in this offering, minus \$0.001, and the exercise price of each Pre-Funded Warrant will be \$0.001 per share. The Pre-Funded Warrants will be exercisable immediately and may be exercised at any time until exercised in full. For each Pre-Funded Warrant we sell, the number of shares of Common Stock we are offering will be decreased on a one-for-one basis. Because we will issue Warrants to purchase [one share] of Common Stock for each share of Common Stock and for each Pre-Funded Warrant sold in this offering, the number of Warrants sold in this offering will not change as a result of a change in the mix of the shares of our Common Stock and Pre-Funded Warrants sold.
Public offering price	\$ per share of Common Stock and accompanying Warrant, or \$ per Pre-Funded Warrant and accompanying Warrant, as applicable.

Common Stock outstanding after this offering ⁽¹⁾	[] shares of Common Stock (assuming we sell only shares of Common Stock and no Pre-Funded Warrants, and none of the Warrants issued in this offering are exercised).
Use of proceeds	We estimate that the net proceeds from this offering will be approximately \$[] based on an assumed combined public offering price of \$[] per share and accompanying Warrant, assuming no exercise of any Warrants and no sale of Pre-Funded Warrants, and after deducting the placement agent fees and estimated offering expenses payable by us. We intend to use the net proceeds from this offering for working capital, strategic, and other general corporate purposes. See “Use of Proceeds” on page 42 of this prospectus.
Risk factors	An investment in our securities is highly speculative and involves substantial risk. Please carefully consider the risks described under the heading “ <i>Risk Factors</i> ” on page 20 and other information in this prospectus for a discussion of factors to consider before deciding to invest in the securities offered hereby. Additional risks and uncertainties not presently known to us or that we currently deem to be immaterial may also impair our business and operations.
Lock-up agreements	We and our directors and officers have agreed with the placement agent not to offer for sale, issue, sell, contract to sell, pledge or otherwise dispose of any of our Common Stock or securities convertible into our Common Stock for a period of 90 days from the date of this prospectus without the prior written consent of the placement agent. See “ <i>Plan of Distribution</i> ” on page 59 of this prospectus.
<p>(1) Unless otherwise indicated, all references in this prospectus to the number of shares of our Common Stock to be outstanding after this offering is based on 111,950,769 shares outstanding as of August 14, 2023, as retrospectively adjusted to reflect our Reverse Stock Split, and excludes:</p> <ul style="list-style-type: none"> • 9,423,486 shares of Common Stock issuable upon the exercise of options of which 8,521,662 have vested at a weighted average exercise price of \$2.80 per share as of March 31, 2023; • 36,019,595 shares of Common Stock issuable upon the exercise of warrants (excluding the Warrants) of which 36,019,595 are exercisable at a weighted average exercise price of \$0.65 per share as of March 31, 2023; • 628,781 shares of Common Stock issuable upon the vesting of restricted stock units of which 497,913 have vested; • 9,884,772 shares of Common Stock issuable upon the conversion of 251 shares of Series A Preferred Stock and 1,443 shares of Series B Preferred Stock, and 500,576 shares of Series C Preferred Stock, 1,058 shares of Series D Preferred Stock, and 5,000 shares of Series E Preferred Stock; • 8,991,782 shares of Common Stock issuable upon the conversion of outstanding convertible promissory notes, based on a conversion price of \$0.495. <p>Unless otherwise indicated, all information in this prospectus reflects or assumes no exercises of any outstanding stock options or warrants.</p>	

Leak-out agreements	<p>Investors in this offering have agreed to enter into leak-out agreements wherein each investor who is party thereto (together with certain of its affiliates) will agree not to sell, dispose or otherwise transfer, directly or indirectly (including, without limitation, any sales, short sales, swaps or any derivative transactions that would be equivalent to any sales or short positions), on any trading day, shares of our Common Stock, including shares of Common Stock purchased in this offering and the shares of Common Stock issuable upon exercise of the Warrants, in an amount more than a specified percentage of the trading volume of our Common Stock on the principal trading market, subject to certain exceptions. This restriction will not apply to any actual “long” (as defined in Regulation SHO promulgated under the Exchange Act) sales by such investor (together with certain of its affiliates) (i) at prices greater than \$[] (as adjusted for stock splits, stock dividends, stock combinations, recapitalizations or other similar events) and (ii) purchased in open market transactions by such investor (together with certain of its affiliates). Further, this restriction will not apply to sales or transfers of any such shares of Common Stock in transactions which do not need to be reported on the Nasdaq consolidated tape so long as the purchaser or transferee executes and delivers a leak-out agreement. After such sale or transfer, future sales of the securities covered by the leak-out agreement entered into by the original owner (together with certain of its affiliates) and the purchaser or transferee will be aggregated to determine compliance with the terms of the leak-out agreement.</p>
Transfer agent and registrar	<p>The registrar and transfer agent for our common stock is VStock Transfer, LLC, located at 18 Lafayette Place Woodmere, New York 11598.</p>
Nasdaq symbol and trading	<p>Our Common Stock is listed on Nasdaq under the symbol “CRKN.” There is no established trading market for the Warrants or Pre-Funded Warrants, and we do not expect a trading market for the Warrants or Pre-Funded Warrants to develop. We do not intend to list the Warrants or Pre-Funded Warrants on any securities exchange or other trading market. Without a trading market, the liquidity of the Warrants and Pre-Funded Warrants will be extremely limited.</p>
Reasonable best efforts	<p>We have agreed to offer and sell the securities offered hereby to the purchasers through the placement agent. The placement agent is not required to buy or sell any specific number or dollar amount of the securities offered hereby, but it will use its reasonable best efforts to solicit offers to purchase the securities offered by this prospectus. See “<i>Plan of Distribution</i>” on page 59 of this prospectus.</p>

RISK FACTORS

An investment in any securities offered pursuant to this prospectus and any applicable prospectus supplement is speculative and involves a high degree of risk. You should carefully consider the risks described below, as well as the other information contained in this prospectus, including the risk factors and other information contained in any applicable prospectus supplement, and our financial statements and the related notes and the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," in in our Annual Report on Form 10-K for the year ended December 31, 2022 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2023, both of which are incorporated by reference herein before deciding whether to invest in our securities. If any of the risks actually occur, our business, results of operations, financial condition, and prospects could be materially adversely affected, the trading price of our Common Stock could decline significantly, and you might lose all or part of your investment.

Risks Related to Our Business

Source and Need for Capital.

As we take steps in the commercialization and marketing of our technology or respond to potential opportunities and/or adverse events, our working capital needs may change. We anticipate that if our cash and cash equivalents are insufficient to satisfy our liquidity requirements, we will require additional funding to sustain our ongoing operations and to continue our research and development activities.

We have funded most of our activities through sales of our securities to investors. Eventual success of the Company and generation of positive cash flow will be dependent upon the extent of commercialization of products using the Company's technology. We can give no assurances that we will generate sufficient cash flows in the future (through sales of our Common Stock, exercise of options and warrants, royalty fees, or otherwise) to satisfy our liquidity requirements or sustain future operations, or that additional funding, if required, will be available when needed or, if available, on favorable terms.

History of Operating Losses.

We have experienced net losses from operations, and we may continue to incur net losses from operations in the future. We have incurred substantial costs and expenses in researching and developing our electrokinetic technology. As of March 31, 2023, we had a cumulative net loss of \$90.3 million since our inception. Our net loss was approximately \$2.3 million for the quarter ended March 31, 2023. Our net loss was approximately \$4.6 million for the three months ended March 31, 2022.

We expect to continue to incur losses from operations and negative cash flows, which raise substantial doubt about our ability to continue as a Going Concern.

We anticipate incurring additional losses until such time, if ever, that we can obtain marketing approval to sell, and then generate significant sales, of our technology that is currently in development. Substantial additional financing will be needed by the Company to fund our operations and to develop and commercialize our technology. These factors raise substantial doubt about the Company's ability to continue as a going concern.

We will seek to obtain additional capital through the sale of debt or equity financings or other arrangements to fund operations; however, there can be no assurance that we will be able to raise needed capital under acceptable terms, if at all. The sale of additional equity may dilute existing stockholders and newly issued shares may contain senior rights and preferences compared to currently outstanding shares of Common Stock. Issued debt securities may contain covenants and limit our ability to pay dividends or make other distributions to stockholders. If we are unable to obtain such additional financing, future operations would need to be scaled back or discontinued. Due to the uncertainty in the Company's ability to raise capital, we believe that there is substantial doubt in our ability to continue as a going concern.

We may not generate sufficient cash flows to cover our operating expenses.

As noted above, we have incurred recurring losses since inception and expect to continue to incur losses as a result of costs and expenses related to our research and continued development of our technology and our corporate general and administrative expenses. Our limited capital resources and operations to date have been substantially funded

through sales of our securities. As of March 31, 2023, we had working capital of approximately -\$6.2 million, cash of approximately \$2.1 million, shareholders' equity of approximately \$7.7 million and an accumulated deficit of approximately \$90.3 million. In the event that we are unable to generate sufficient cash from our operating activities or raise additional funds, we may be required to delay, reduce or severely curtail our operations or otherwise impede our on-going business efforts, which could have a material adverse effect on our business, operating results, financial condition and long-term prospects

We have never declared a cash dividend and do not intend to declare a cash dividend in the foreseeable future.

We have never declared or paid cash dividends on our Common Stock. Payment of dividends on our Common Stock is within the discretion of our Board of Directors and will depend upon our future earnings, capital requirements, financial condition and other relevant factors. We do not anticipate declaring or paying any cash dividends on our Common Stock in the foreseeable future.

We currently rely upon our vendors to provide elements of the manufacturing tooling.

We currently depend upon the activities of our vendors to provide certain tooling elements of our manufacturing process. We do not have full control over their processes which may mean risks in the form of delivery timing and quality of tooling components.

Electrokinetic products face intense competition, which could affect our ability to increase our revenues.

The market for electrokinetic products is intensely competitive and we expect competition to increase in the future. We compete based on the functionality and the quality of our product. Many of our current and potential competitors have significantly greater financial, technical, marketing and other resources than we have. In addition, many of our competitors have well-established relationships with our current and potential customers and have extensive knowledge of our industry. If our competitors develop new technologies or new products, improve the functionality or quality of their current products, or reduce their prices, and if we are unable to respond to such competitive developments quickly either because our research and development efforts do not keep pace with our competitors or because of our lack of financial resources, we may be unable to compete effectively.

Declining production of automobiles and real estate could harm our business.

Our commercialization efforts could be negatively impacted if the global production of automobiles and real estate construction declines significantly. If such commercialization is reduced, our revenues, results of operations and financial condition could be negatively impacted.

We are dependent on key personnel.

Our continued success will depend, to a significant extent, on the services of our directors, executive management team, key personnel and certain key scientists. If one or more of these individuals were to leave the Company, there is no guarantee that we could replace them with qualified individuals in a timely or economically satisfactory manner or at all. The loss or unavailability of any or all of these individuals could harm our ability to execute our business plan, maintain important business relationships and complete certain product development initiatives, which would have a material adverse effect on our business, results of operations and financial conditions.

Dependence on electrokinetic technology.

Because electrokinetic technology is the only technology we work with, our success depends upon the viability of electrokinetic technology which has yet to be fully proven. We have not fully ascertained the performance and long-term reliability of our technology, and therefore there is no guarantee that our technology will be successfully incorporated into all of the products which we are targeting for use of electrokinetic technology. We expect that different product applications for electrokinetic technology will have different performance and reliability specifications. We expect that our licensees will primarily be responsible for reliability testing, but that we may also continue to do reliability testing so that we can more effectively focus our research and development efforts toward constantly improving the performance characteristics and reliability of products using electrokinetic technology.

Our patents and other protective measures may not adequately protect our proprietary intellectual property, and we may be infringing on the rights of others.

Our intellectual property, particularly our proprietary rights in our electrokinetic technology, is critical to our success. We have acquired various patents, and filed other patent applications, for various applications and aspects of our electrokinetic technology. In addition, we generally enter into confidentiality and invention agreements with our employees and consultants. Such patents and agreements and various other measures we take to protect our intellectual property from use by others may not be effective for various reasons generally applicable to patents and their granting and enforcement. In addition, the costs associated with enforcing patents, confidentiality and invention agreements or other intellectual property rights may be expensive. Our inability to protect our proprietary intellectual property rights or gain a competitive advantage from such rights could harm our ability to generate revenues and, as a result, our business and operations.

The extent to which the coronavirus (“COVID-19”) outbreak impacts our business, results of operations and financial condition will depend on future developments, which cannot be predicted.

The COVID-19 pandemic has caused us to modify our business practices (including employee travel, employee work locations, and cancellation of physical participation in meetings, events and conferences), and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers and business partners. There is no certainty that such measures will be sufficient to mitigate the risks posed by the virus or otherwise be satisfactory to government authorities.

The extent to which COVID-19 impacts our business, results of operations and financial condition will depend on future developments, which are uncertain and cannot be predicted, including, but not limited to, the duration and spread of the outbreak, its severity, the actions to contain the virus or treat its impact, and how quickly and to what extent normal economic and operating conditions can resume. Even after the coronavirus outbreak has subsided, we may continue to experience materially adverse impacts to our business as a result of its global economic impact, including any recession that has occurred or may occur in the future.

Our future growth and success is dependent upon the real estate industry’s willingness to adopt smart glass and specifically our products, especially in the smart glass market which we are targeting with DynamicTint™.

Our growth is highly dependent upon the adoption of smart glass by the real estate industry. Although we anticipate growing demand for our products, there is no guarantee of such future demand, or that our products will remain competitive in the market.

If the market for smart glass in general and our products in particular do not develop as we expect, or develop more slowly than we expect, or if demand for our products decreases in our markets, our business, prospects, financial condition and operating results could be harmed. The market for our products could be affected by numerous factors, such as:

- perceptions about smart glass features, quality, safety, performance and cost;
- competition, including from other types of smart glass or traditional glass;
- the cost premium of smart glass in contrast to traditional glass;
- government regulations and economic incentives;
- reduced construction activity, including as a result of the short and long-term effect of COVID-19; and
- concerns about our future viability.

Our new products and services may not be successful.

We announced our first smart glass product in 2020 and we anticipate launching additional products and services in the future. Existing and new products and services we may launch in the future may not be well received by our business customers, may not help us to generate new business customers, may adversely affect the attrition rate of existing business customers, may increase our business customer acquisition costs and may increase the costs to service our business customers. Any profits we may generate from these or other new products or services may be lower than

profits generated from our other products and services and may not be sufficient for us to recoup our development or business customer acquisition costs incurred. New products and services may also have lower gross margins, particularly to the extent that they do not fully utilize our existing infrastructure. In addition, new products and services may require increased operational expenses or business customer acquisition costs and present new and difficult technological and intellectual property challenges that may subject us to claims or complaints if business customers experience service disruptions or failures or other quality issues. To the extent our new products and services are not successful, it could have a material adverse effect on our business, financial condition, cash flows or results of operations.

If we are unable to establish and maintain confidence in our long-term business prospects among business customers, analysts and within our industries, then our financial condition, operating results, and business prospects may suffer materially.

Business customers may be less likely to purchase our products if they are not convinced that our business will succeed or that our service and support and other operations will continue in the long term. Similarly, suppliers and other third parties will be less likely to invest time and resources in developing business relationships with us if they are not convinced that its business will succeed. Accordingly, in order to build and maintain its business, we must maintain confidence among business customers, suppliers, analysts, ratings agencies and other parties in our long-term financial viability and business prospects. Maintaining such confidence may be complicated by certain factors, such as our limited operating history, negative press, business customer unfamiliarity with our products, any delays in scaling manufacturing, delivery and service operations to meet demand, competition and uncertainty regarding the future of smart glass or our other products and services, our quarterly production and sales performance compared with market expectations, and any other negative publicity related to us. Many of these factors are largely outside our control, and any negative perceptions about our long-term business prospects, even if exaggerated or unfounded, such as speculation regarding the sufficiency or stability of our management team, could harm our business and make it more difficult to raise additional funds if needed.

Our operating and financial results forecast relies in large part upon assumptions and analyses developed by us. If these assumptions or analyses prove to be incorrect, our actual operating results may be materially different from our forecasted results.

Our projected financial and operating information reflect current estimates of future performance. Whether actual operating and financial results and business developments will be consistent with our expectations and assumptions as reflected in our forecasts depends on a number of factors, many of which are outside our control, including, but not limited to:

- market acceptance of our products;
- success and timing of development activity;
- competition, including from established and future competitors;
- our ability to manage our growth;
- our ability to satisfy the manufacturing and production demands associated with customer orders;
- whether we can manage relationships with key suppliers;
- our ability to retain existing key management, integrate recent hires and attract, retain and motivate qualified personnel; and
- the overall strength and stability of domestic and international economies.

Unfavorable changes in any of these or other factors, most of which are beyond our control, could materially and adversely affect our business, results of operations and financial results.

Disruption of supply or shortage of materials, in particular for glass, could harm our business.

Our business is dependent on the continued supply of certain materials, including glass, acrylic, as well as other chemicals such as indium tin oxide, certain pigments and polyethylene for use in our products, and we may experience a sustained interruption in the supply or shortage of such materials. Any such supply interruption or shortage could

materially and negatively impact our business, prospects, financial condition and operating results. The available supply may be unstable, depending on market conditions and global demand for these materials and could adversely affect our business and operating results.

Increases in cost of materials could harm our business.

Certain materials necessary to produce our products, including glass, acrylic, as well as other chemicals such as indium tin oxide, certain pigments and polyethylene, are sourced from a limited number of suppliers. Any disruption in the supply of materials from such suppliers could disrupt production of our products until such time as a different supplier is fully qualified. As a result, we may experience an increase in costs or inability to meet customer demand. Furthermore, shortages or increased demand of such materials and other economic conditions may cause us to experience significant increases in freight charges and the cost of materials. Substantial increases in the prices for our materials or prices charged to us would increase our operating costs and could reduce our margins if we cannot recoup the increased costs through increased product prices. Any attempts to increase product prices in response to increased material costs could result in cancellations of product orders and reservations and therefore materially and adversely affect our brand, image, business, prospects and operating results.

We may be unable to meet our growing production demand, product sales, delivery plans and servicing needs, or accurately project and manage this growth nationwide or internationally, which could harm our business and prospects.

In the past, we've experienced, and we may experience in the future, delays or other complications in the design, manufacture, launch, and production ramp of our products, including DynamicTint™ or may not realize our manufacturing cost targets, which could harm our brand, business, prospects, financial condition and operating results. Our manufacturing facility may require significant cash investments and management resources for these plans, and we may not meet our expectations with respect to additional sales of our products. In addition, we've introduced in the past, and we may introduce in the future, new manufacturing technologies, techniques and processes. There is no guarantee that we will be able to successfully and timely introduce and scale any such new processes or features.

Our production plans for our products are based on many key assumptions, including:

- **Ability to utilize manufacturing capacity to achieve the planned production yield.** We assume that we will be able to sustain and further expand our high-volume production and our products at our Corvallis and Salem facilities, including with the introduction of new product features, without exceeding our projected costs and on our projected timeline; and
- **Suppliers' ability to support our needs.** We assume that we will be able to maintain suppliers for the necessary components on terms and conditions that are acceptable to us and that we will be able to obtain high-quality components on a timely basis and in the necessary quantities to support high volume production.

If one or both of the foregoing assumptions turns out to be incorrect, our ability to meet our projections, including for production, on time and at volumes and prices that are profitable, the demand for and deliveries of our products, as well as our business, prospects, operating results and financial condition, may be materially and adversely impacted.

Concurrent with developing, launching and ramping our products, our success will depend on our ability to continue to significantly increase our sales, deliveries, and servicing, while allocating our available resources among multiple products simultaneously. Although we have a plan for selling and delivering increased volumes of our products, we have limited experience developing, manufacturing, selling, servicing and allocating our available resources at the scale to which we expect to grow. If we are unable to realize our plans, our brand, business, prospects, financial condition and operating results could be materially damaged.

We continuously evaluate, and as appropriate evolve, our operations and product offerings in order to maximize our reach and optimize our costs. However, there is no guarantee that each step in our evolving strategy will be perceived as intended by developers, tenants, and the construction industry. Likewise, as we develop and grow our products and services in North America, and possibly worldwide, our success will depend on our ability to correctly forecast demand in different markets.

We may also face difficulties meeting our sales and delivery goals in both existing markets as well as new markets into which we expand. There is no assurance that we will be able to ramp our business to meet our sales and delivery targets in North America or even globally, or that our projections on which such targets are based will prove accurate. This ongoing expansion in North America and potentially internationally, which includes planned entry into markets in which we have limited or no experience selling, delivering, and servicing our products at scale, and which may pose legal, regulatory, labor, cultural and political challenges that we have not previously encountered, may not have the desired effect of increasing sales and expanding our brand presence to the degree we are anticipating. Moreover, we may not be successful in managing our national and future international operations if we are unable to avoid cost overruns and other unexpected operating costs, adapt our products and conduct our operations to meet local requirements and regulations, implement required local infrastructure, systems and processes, and find and hire as needed additional sales, service, construction and administrative personnel. If we fail to manage our growth effectively, it could result in negative publicity and damage to our brand and have a material adverse effect on our business, prospects, financial condition and operating results.

We rely on complex machinery for our operations, and production involves a significant degree of risk and uncertainty in terms of operational performance and costs.

We rely heavily on complex machinery for our operations and the production of our products that suffers unexpected malfunctions from time to time and requires repairs and spare parts to resume operations, which may not be available when needed. Unexpected malfunctions of our production equipment may significantly affect intended operational efficiency. In addition, the operational performance and costs associated with this equipment can be difficult to predict and may be influenced by factors outside of our control, such as, but not limited to, failures by suppliers to deliver necessary machinery components in a timely manner and at prices and volumes acceptable to us, which could have a material adverse effect on our operational performance, cash flows, financial condition or prospects.

If our products fail to perform as expected, our ability to develop, market and sell our products and services could be harmed.

If our products contain defects in design and manufacture that cause them not to perform as expected or that require repair, or certain features of our products take longer than expected to become enabled or are legally restricted, our ability to develop, sell, and service our products could be harmed. Although we attempt to remedy any issues we observe in our products as effectively and rapidly as possible, such efforts may not be timely, may hamper production or may not be to the satisfaction of our business customers. While we perform extensive internal testing on the products we manufacture, we currently have a limited frame of reference by which to evaluate detailed long-term quality, reliability, durability and performance characteristics of our products. There can be no assurance that we will be able to detect and fix any defects in our products prior to their sale to business customers.

Our inability to provide products or services in a timely manner, legal restrictions on product features, or defects in our products or services, including products and services of third parties that we incorporate into our offerings, could adversely affect our reputation, result in delivery delays, product recalls, product liability claims, and significant warranty and other expenses, and subject us to claims or litigation. In addition, our inability to meet business customers' expectations with respect to our products or services could increase attrition rates or affect our ability to generate new business customers and thereby have a material adverse effect on our business, financial condition, cash flow or results of operations.

We may choose to or be compelled to undertake product recalls or take other similar actions, which could adversely affect our brand image and financial performance.

Any product recall with respect to our products may result in adverse publicity, damage our brand and adversely affect our business, prospects, operating results and financial condition. In the future, we may at various times, voluntarily or involuntarily, initiate a recall if any of our products prove to be defective or noncompliant with applicable laws and regulations. Such recalls, whether voluntary or involuntary or caused by systems or components engineered or manufactured by us or our suppliers, could involve significant expense and could adversely affect our brand image in our target markets, as well as our business, prospects, financial condition and results of operations.

We must successfully maintain and upgrade our information technology systems.

We rely on various information technology systems to manage our operations, including general, non proprietary information technology systems in our facility and proprietary information technology systems in our products. As necessary, we implement modifications and upgrades to these systems, and replace certain of our legacy systems with successor systems with new functionality.

The technology and capital equipment we employ may become old or obsolete, which could require significant capital expenditures for upkeep and upgrade over time. Our products and services interact with the hardware and software technology of systems and devices located at our business customers' property. We may be required to implement new technologies or adapt existing technologies in response to changing market conditions, business customer preferences, industry standards or inability to secure necessary intellectual property licenses, which could require significant capital expenditures. Our inability to adapt to changing technologies, market conditions or subscriber preferences in a timely manner could have a material adverse effect on our business, financial condition, cash flows or results of operations.

There are inherent costs and risks associated with modifying or changing these systems and implementing new systems, including potential disruption of our internal control structure, substantial capital expenditures, additional administration and operating expenses, retention of sufficiently skilled personnel to implement and operate the new systems, demands on management time and other risks and costs of delays or difficulties in transitioning to new systems or of integrating new systems into our current systems. While management seeks to identify and remediate issues, we can provide no assurance that our identification and remediation efforts will be successful or that we will not encounter additional issues as we complete the implementation of these and other systems. In addition, our information technology system implementations may not result in productivity improvements at a level that outweighs the costs of implementation, or at all. The implementation of new information technology systems may also cause disruptions in our business operations and have an adverse effect on our business, cash flows and operations.

We rely on certain third-party providers of licensed software and services integral to the operations of our business.

Certain aspects of the operation of our business may depend on third-party software and service providers. With regard to licensed software technology, we may become dependent upon the ability of third parties to maintain, enhance or develop their software and services on a timely and cost-effective basis, to meet industry technological standards and innovations to deliver software and services that are free of defects or security vulnerabilities, and to ensure their software and services are free from disruptions or interruptions. Further, these third-party services and software licenses may not always be available to us on commercially reasonable terms or at all.

If the third-party software or services become obsolete, fail to function properly, are incompatible with future versions of our products or services, or are defective or otherwise fail to address our needs, there is no assurance that we would be able to replace the functionality provided by any future third-party software or services with software or services from alternative providers. Any of these factors could have a material adverse effect on our financial condition, cash flows or results of operations.

Any unauthorized control or manipulation of our products' systems could result in loss of confidence in us and our products and harm our business.

Our products contain complex information technology systems. We have designed, implemented and tested security measures intended to prevent unauthorized access to our information technology networks, our products and our systems. However, hackers may attempt to gain unauthorized access to modify, alter and use such networks, products and systems to gain control of, or to change, our products' functionality, user interface and performance characteristics, or to gain access to data stored in or generated by our products. We encourage reporting of potential vulnerabilities in the security of our products via our security vulnerability reporting policy, and we aim to remedy any reported and verified vulnerability. However, there can be no assurance that vulnerabilities will not be exploited in the future before they can be identified, or that our remediation efforts are or will be successful.

Any unauthorized access to or control of our products or their systems or any loss of data could result in legal claims or proceedings. In addition, regardless of their veracity, reports of unauthorized access to our products, their systems or data, as well as other factors that may result in the perception that our products, their systems or data are capable of being "hacked," could negatively affect our brand and harm our business, prospects, financial condition and operating results.

If our security controls are breached or unauthorized or inadvertent access to business customers' information or other data are otherwise obtained, our services may be perceived as insecure, we may lose existing business customers or fail to attract new business customers, our business may be harmed, and we may incur significant liabilities.

Our future products may involve the collection, storage, transmission and processing of personal, payment, credit and other confidential and private information of our business customers, and may in certain cases permit access to our business customers' property or help secure them. Such future products that may present privacy and data risks may be subject to privacy and data protection laws and regulations. We also maintain and process other confidential and proprietary information in our business, including our employees' and contractors' personal information and confidential business information. We rely on proprietary and commercially available systems, software, tools and monitoring to protect against unauthorized use or access of the information we process and maintain. Our services and the networks and information systems we utilize in our business are at risk for breaches as a result of third-party action, employee, vendor or partner error, malfeasance, or other factors. For example, we may experience instances of our employees, contractors and other third parties improperly accessing our and/or our business customers' systems and information in violation of our internal policies and procedures.

Criminals and other nefarious actors may use increasingly sophisticated methods, including cyberattacks, phishing, social engineering and other illicit acts to capture, access or alter various types of information, to engage in illegal activities such as fraud and identity theft, and to expose and exploit potential security and privacy vulnerabilities in corporate systems and websites. Unauthorized intrusion into the portions of our systems and networks and data storage devices that process and store business customers' confidential and private information, the loss of such information or the deployment of malware or other harmful code to our services or our networks or systems may result in negative consequences, including the actual or alleged malfunction of our products or services. In addition, third parties, including our partners and vendors, could also be sources of security risks to us in the event of a failure of their own security systems and infrastructure. The threats we face continue to evolve and are difficult to predict due to advances in computer capabilities, new discoveries in the field of cryptography and new and sophisticated methods used by criminals. There can be no assurances that our defensive measures will prevent cyber-attacks or that we will discover network or system intrusions or other breaches on a timely basis or at all. We cannot be certain that we will not suffer a compromise or breach of the technology protecting the systems or networks that house or access our products and services or on which our or our partners or vendors process or store personal information or other sensitive information or data, or that any such incident will not be believed or reported to have occurred. Any such actual or perceived compromises or breaches to systems, or unauthorized access to, or acquisition or loss of, data, whether suffered by us, our partners or vendors or other third parties, whether as a result of employee error or malfeasance or otherwise, could harm our business. They could, for example, cause interruptions in operations, loss of data, loss of confidence in our services and products and damage to our reputation and could limit the adoption of our services and products. They could also subject us to costs, regulatory investigations and orders, litigation, contract damages, indemnity demands and other liabilities and materially and adversely affect our business customer base, sales, revenue, and profits. Any of these could, in turn, have a material adverse impact on our business, financial condition, cash flows or results of operations.

Further, if a high profile security breach occurs with respect to another provider of smart glass, our existing and potential business customers may lose trust in the security of our services or in smart glass generally, which could adversely impact our ability to retain existing business customers or attract new ones. Even in the absence of any security breach, business customers' concerns about security, privacy or data protection may deter them from using our service. Our insurance policies covering errors and omissions and certain security and privacy damages and claim expenses may not be sufficient to compensate for all potential liability. Although we maintain cyber liability insurance, we cannot be certain that our insurance coverage will be adequate for liabilities actually incurred or that insurance will continue to be available to us on economically reasonable terms, or at all.

Our products and our website, systems, and data we maintain may be subject to intentional disruption, other security incidents, or alleged violations of laws, regulations, or other obligations relating to data handling that could result in liability and adversely impact our reputation and future sales.

We may face significant challenges with respect to information security and maintaining the security and integrity of our systems and other systems used in our business, as well as with respect to the data stored on or processed by these systems. Advances in technology, an increased level of sophistication, and an increased level of expertise of hackers,

new discoveries in the field of cryptography or others can result in a compromise or breach of the systems used in its business or of security measures used in our business to protect confidential information, personal information, and other data.

The availability and effectiveness of our products, and our ability to conduct our business and operations, depend on the continued operation of information technology and communications systems, some of which we have yet to develop or otherwise obtain the ability to use. Systems used in our business, including data centers and other information technology systems, will be vulnerable to damage or interruption. Such systems could also be subject to break-ins, sabotage and intentional acts of vandalism, as well as disruptions and security incidents as a result of non-technical issues, including intentional or inadvertent acts or omissions by employees, service providers, or others. We anticipate using outsourced service providers to help provide certain services, and any such outsourced service providers face similar security and system disruption risks as us. Some of the systems used in our business will not be fully redundant, and our disaster recovery planning cannot account for all eventualities. Any data security incidents or other disruptions to any data centers or other systems used in our business could result in lengthy interruptions in our service.

Our products and services are subject to substantial regulations, which are evolving, and unfavorable changes or failure by us to comply with these regulations could substantially harm its business and operating results.

Smart glass is subject to substantial regulation under international, federal, state, and local laws. We incur significant costs in complying with these regulations and may be required to incur additional costs to comply with any changes to such regulations, and any failures to comply could result in significant expenses, delays, or fines. We may become subject to laws and regulations applicable to the supply, manufacture, import, sale and service of smart glass internationally. For example, in countries outside of the U.S., we may be required to meet standards relating to safety that are often materially different from requirements in the U.S., thus resulting in additional investment into the products and systems to ensure regulatory compliance in those countries. This process may include official review and certification of our products by foreign regulatory agencies prior to market entry, as well as compliance with foreign reporting and recall management systems requirements.

We are subject to various government regulations that could impose substantial costs upon us and negatively impact our ability to operate our manufacturing facility.

As a manufacturing company, including with respect to its facility in Corvallis, Oregon, we are and will be subject to complex environmental, manufacturing, health and safety laws and regulations, including laws relating to the use, handling, storage, recycling, disposal and human exposure to hazardous materials. The costs of compliance, including remediating contamination if any is found on our properties and any changes to our operations mandated by new or amended laws, may be significant. We may also face unexpected delays in obtaining permits and approvals required by such laws in connection with its manufacturing facility, which would hinder our operation of this and future facilities. Such costs and delays may adversely impact our business prospects and operating results. Furthermore, any violations of these laws may result in substantial fines and penalties, remediation costs, third party damages, or a suspension or cessation of our operations. We may also be subject to anti-corruption, anti-bribery, anti-money laundering, financial and economic sanctions, and similar laws. Non-compliance with such laws can subject us to administrative, civil, and criminal fines and penalties, collateral consequences, remedial measures and legal expenses, all of which could adversely affect our business, results of operations, financial condition and reputation.

There may be laws in jurisdictions we have not yet entered or laws we are unaware of in jurisdictions we have entered that may restrict our sales or other business practices. The laws in this area can be complex, difficult to interpret and may change over time. Continued regulatory limitations and other obstacles that may interfere with our ability to commercialize our products could have a negative and material impact on our business, prospects, financial condition, and results of operations.

Many of our products must comply with local building codes and ordinances, and failure of our products to comply with such codes and ordinances may have an adverse effect on its business.

Many of our products must comply with local building codes and ordinances. Building codes may also affect the products our customers are allowed to use, and, consequently, changes in building codes may also affect the sale of our products. These codes and ordinances are subject to future government review and interpretation. If our products fail to

comply with such local building codes or ordinances, our ability to market and sell such products would be impaired. Also, should these codes and ordinances be amended or expanded, or should new laws and regulations be enacted, we could incur additional costs or become subject to requirements or restrictions that require us to modify our products or adversely affect our ability to market and sell our products. If our products do not adequately or quickly adapt to building standards, we may lose market share to competitors, which would adversely affect our business, results of operation, financial condition, and cash flows. Furthermore, failure of our products to comply with such codes or ordinances could subject it to negative publicity or damage its reputation.

Compliance with the regulations of the U.S. Occupational Safety and Health Administration (“OSHA”) can be costly, and non-compliance with such requirements may result in potentially significant monetary penalties, operational delays, negative publicity and adverse effect on our financial condition.

Our operations are subject to regulation under OSHA and other state and local laws and regulations. OSHA establishes certain employer responsibilities, including maintenance of a workplace free of recognized hazards likely to cause death or serious injury, compliance with standards promulgated by the applicable regulatory authorities and various recordkeeping, disclosure and procedural requirements. Changes to OSHA requirements, or stricter interpretation or enforcement of existing laws or regulations, could result in increased costs. If we fail to comply with applicable OSHA regulations, even if no work-related serious injury or death occurs, we may be subject to civil or criminal enforcement and be required to pay substantial penalties, incur significant capital expenditures or suspend or limit operations. Any such accidents, citations, violations, injuries or failure to comply with industry best practices may subject us to adverse publicity, damage our reputation and competitive position and adversely affect our business.

We have incurred, and we will continue to incur, capital and operating expenditures and other costs in the ordinary course of business in complying with OSHA and other state, local and foreign laws and regulations. While we have invested, and we will continue to invest, substantial resources in worker health and safety programs, there can be no assurance that we will avoid significant liability exposure. Personal injury claims for damages, including for bodily injury or loss of life, could result in substantial costs and liabilities, which could materially and adversely affect our financial condition, results of operations or cash flows. In addition, if our safety record were to substantially deteriorate, or if we suffered substantial penalties or criminal prosecution for violation of health and safety regulations, business customers could cancel existing contracts and not award future business to us, which could materially adversely affect our liquidity, cash flows and results of operations.

We are subject to labor and employment laws and regulations, which could increase our costs and restrict our operations in the future.

Our business is subject to a variety of employment laws and regulations and may become subject to additional requirements in the future. Although we believe we are in material compliance with applicable employment laws and regulations, in the event of a change in requirements, we may be required to modify our operations or to utilize resources to maintain compliance with such laws and regulations. Moreover, we may be subject to various employment-related claims, such as individual or class actions or government enforcement actions relating to alleged employment discrimination, employee classification and related withholding, wage-hour disputes, labor standards or healthcare and benefit issues. Our failure to comply with applicable employment laws and regulations and related legal actions against us may affect our ability to compete or have a material adverse effect on our business, financial condition, cash flows or results of operations.

We may fail to obtain or maintain necessary licenses or otherwise fail to comply with applicable laws and regulations.

Our business focuses on contracts and transactions with business customers and therefore is subject to a variety of laws, regulations and licensing requirements that govern our interactions with business customers, including those pertaining to privacy and data security, business customer financial transactions and warranties. Our business may become subject to additional such requirements in the future. In certain jurisdictions, we are also required to obtain licenses or permits to comply with standards governing marketing and sales efforts, servicing of business customers, monitoring station employee selection and training and to meet certain standards in the conduct of our business. These laws and regulations are dynamic and subject to potentially differing interpretations, and various legislative and regulatory bodies may expand current laws or regulations or enact new laws and regulations regarding these matters. We strive to comply with all applicable laws and regulations relating to our interactions with business customers. It is possible, however, that these requirements may be interpreted and applied in a manner that is inconsistent from

one jurisdiction to another and may conflict with other rules or our practices. Our noncompliance with any such law or regulations could also expose us to claims, proceedings, litigation and investigations by private parties and regulatory authorities, as well as substantial fines and negative publicity, each of which may materially and adversely affect our business. Delays in obtaining, or failing to obtain, approvals or rights, such as permitting, interconnection, or land usage approvals or rights, could affect our business customers' builds. We may incur significant expenses to comply with such laws and regulations, and increased regulation of matters relating to our interactions with business customers could require us to modify our operations and incur significant additional expenses, which could have an adverse effect on our business, financial condition and results of operations. If we expand the scope of our products or services or our operations in new markets, we may be required to obtain additional licenses and otherwise maintain compliance with additional laws, regulations or licensing requirements.

Changes in these laws or regulations or their interpretation, as well as new laws, regulations or licensing requirements which may be enacted, could dramatically affect how we do business, acquire business customers, and manage and use information we collect from and about current and prospective customers and the costs associated therewith. In addition, federal, state and local governmental authorities have considered, and may in the future consider, implementing consumer protection rules and regulations, which could impose significant constraints on our sales channels.

We are subject to requirements relating to environmental and safety regulations and environmental remediation matters which could adversely affect its business, results of operation and reputation.

We are subject to federal, state and local environmental laws and regulations governing, among other things, solid and hazardous waste storage, treatment and disposal, and remediation of releases of hazardous materials. Our suppliers are also subject to federal, state and local environmental laws and regulations, and their use of hazardous materials may adversely impact their operations and the availability of raw materials. While we adapt our manufacturing and distribution processes to the environmental control standards of regulatory authorities, we cannot completely eliminate the risk of accidental contamination or injury from hazardous or regulated materials, including injury of its employees, individuals who handle its products, or others who claim to have been exposed to our products, nor can we completely eliminate the unanticipated interruption or suspension of operations at its facilities due to such events. We may be held liable for significant damages or fines in the event of contamination or injury, and such assessed damages or fines could have an adverse effect on its financial performance and results of operations.

There are capital, operating and other costs associated with compliance with these environmental laws and regulations. Environmental laws and regulations may become more stringent in the future, which could increase costs of compliance or require us to manufacture with alternative technologies and materials. Non-compliance with such regulations may include litigation, regulation, fines, increased insurance premiums, mandates to temporarily halt production, workers' compensation claims, or other actions that impact the company brand, finances, or ability to operate.

Our insurance strategy may not be adequate to protect us from all business risks.

We may be subject, in the ordinary course of business, to losses resulting from products liability, accidents, acts of God and other claims against us, for which we may have no insurance coverage. A loss that is uninsured or which exceeds policy limits may require us to pay substantial amounts, which could adversely affect our financial condition and operating results.

We are subject to all of the ordinary course operating hazards and risks that may come with the provision of our products and services and business operations. In addition to contractual provisions limiting our liability to business customers and third parties, we maintain insurance policies in such amounts and with such coverage and deductibles as required by law and that we believe are reasonable and prudent. Nevertheless, such insurance may not be adequate to protect us from all the liabilities and expenses that may arise from claims for personal injury, death or property damage arising in the ordinary course of our business and current levels of insurance may not be able to be maintained or be available at economical prices. If a significant liability claim is brought against us that is not covered by insurance, then we may have to pay the claim with our own funds, which could have a material adverse effect on our business, financial condition, cash flows or results of operations. We may not be able to secure additional product liability insurance coverage on commercially acceptable terms or at reasonable costs when needed, particularly if we do face liability for our products and are forced to make a claim under our policy.

Our current and future warranty reserves may be insufficient to cover future warranty claims which could adversely affect our financial performance.

If our warranty reserves are inadequate to cover future warranty claims on our products, our business, prospects, financial condition and operating results could be materially and adversely affected. We evaluate warranty reserves on an ongoing basis and record liabilities for matters in which losses are probable and the amount of loss can be reasonably estimated.

Our business may be adversely affected by any disruptions caused by union activities.

Although our employees are currently not unionized and we have not experienced any work stoppages since our inception, it is not uncommon for employees at manufacturing companies to belong to a union, which can result in higher employee costs and increased risk of work stoppages. Although we work diligently to provide the best possible work environment for our employees, our employees may decide to join or seek recognition to form a labor union in the future, or we may be required to become a union signatory. If a work stoppage occurs, it could delay the manufacture and sale of our products and have a material adverse effect on our business, prospects, operating results or financial condition.

Adverse developments in the credit markets may impair our ability to secure debt financing.

In past economic downturns, such as the financial crisis in the United States that began in mid2007 and during other times of extreme market volatility, many commercial banks and other financial institutions stopped lending or significantly curtailed their lending activity. In addition, in an effort to stem losses and reduce their exposure to segments of the economy deemed to be high risk, some financial institutions limited routine refinancing and loan modification transactions and even reviewed the terms of existing facilities to identify bases for accelerating the maturity of existing lending facilities. The United States and global economies suffered dramatic downturns as a result of COVID-19, a deterioration in the credit markets and related financial crisis, as well as a variety of other factors including, among other things, extreme volatility in security prices, severely diminished liquidity and credit availability, ratings downgrades of certain investments and declining valuations of others. If these conditions recur or persist, it may be difficult for us to obtain desired financing to finance the growth of our investments on acceptable economic terms, or at all.

COVID-19 has, and until fully resolved could again, result in, among other things, increased draws by borrowers on revolving lines of credit and increased requests by borrowers for amendments, modifications and waivers of their credit agreements to avoid default or change payment terms, increased defaults by such borrowers and/or increased difficulty in obtaining refinancing at the maturity dates of their loans. The duration and effectiveness of responsive measures implemented by governments and central banks cannot be predicted. The commencement, continuation, or cessation of government and central bank policies and economic stimulus programs, including changes in monetary policy involving interest rate adjustments or governmental policies, may contribute to the development of or result in an increase in market volatility, illiquidity and other adverse effects that could negatively impact the credit markets and us.

If we are unable to consummate credit facilities on commercially reasonable terms, our liquidity may be reduced significantly. If we are unable to repay amounts outstanding under any facility we may enter into and are declared in default or are unable to renew or refinance any such facility, it would limit our ability to initiate significant originations or to operate our business in the normal course. These situations may arise due to circumstances that we may be unable to control, such as inaccessibility of the credit markets, a severe decline in the value of the U.S. dollar, a further economic downturn or an operational problem that affects third parties or us, and could materially damage our business. Moreover, we are unable to predict when economic and market conditions may become more favorable. Even if such conditions improve broadly and significantly over the long term, adverse conditions in particular sectors of the financial markets could adversely impact our business.

Loss of a major customer could result in a decrease in our future sales and earnings.

We anticipate that a limited number of customers in any given period may account for a substantial portion of our total net revenue for the foreseeable future. The business risks associated with this concentration, including increased credit risks for these and other customers and the possibility of related bad debt write-offs, could negatively affect our margins and profits. Additionally, the loss of a major customer, whether through competition or consolidation, or a disruption in sales to such a customer, could result in a decrease of our future sales and earnings.

If we are unable to achieve our targeted manufacturing costs for our products, our financial condition and operating results will suffer.

While we are continuing to and expect in the future to realize cost reductions by both us and our suppliers, including through increased production, there is no guarantee we will be able to achieve sufficient cost savings to reach our gross margin and profitability goals, or our other financial targets. We incur significant costs related to procuring the materials required to manufacture our products and compensating our personnel. If our efforts to continue to decrease manufacturing costs are not successful, we may incur substantial costs or cost overruns in utilizing and increasing the production capability of our manufacturing facility. Many of the factors that impact our manufacturing costs are beyond our control, such as potential increases in the costs of our materials and components. If we are unable to continue to control and reduce our manufacturing costs, our operating results, business and prospects will be harmed.

We are exposed to fluctuations in currency exchange rates, which could affect our financial results.

Foreign exchange rates are influenced by many factors outside of our control, including but not limited to: changing supply and demand for a particular currency, monetary policies of governments (including exchange-control programs, restrictions on local exchanges or markets and limitations on foreign investment in a country or an investment by residents of a country in other countries), changes in balances of payments and trade, trade restrictions and currency devaluations and revaluations. The resulting fluctuations in the exchange rates for the other currencies could have an adverse effect on our financial condition and results of operations.

We are subject to collection risks.

We may face normal collection risks with business customers and suppliers. If we fail to collect from our business customers, our business and operating results could be adversely affected.

Future transactions could pose risks.

We frequently evaluate strategic opportunities both within and outside our existing lines of business. We expect from time to time to pursue additional business opportunities and may decide to eliminate or acquire certain businesses, products or services. There are various risks and uncertainties associated with potential acquisitions and divestitures, including: (i) availability of financing; (ii) difficulties related to integrating previously separate businesses into a single unit, including product and service offerings, distribution and operational capabilities and business cultures; (iii) general business disruption; (iv) managing the integration process; (v) diversion of management's attention from day-to-day operations, (vi) assumption of costs and liabilities of an acquired business, including unforeseen or contingent liabilities or liabilities in excess of the amounts estimated; (vii) failure to realize anticipated benefits and synergies, such as cost savings and revenue enhancements; (viii) potentially substantial costs and expenses associated with acquisitions and dispositions; (ix) failure to retain and motivate key employees; and (x) difficulties in applying our internal control over financial reporting and disclosure controls and procedures to an acquired business. Any or all of these risks and uncertainties, individually or collectively, could have material adverse effect on our business, financial condition, cash flow or results of operations. We can offer no assurance that any such strategic opportunities will prove to be successful. Among other negative effects, our pursuit of such opportunities could cause our cost of investment in new business customers to grow at a faster rate than our recurring revenue and fees collected at the time of sale. Additionally, any new product or service offerings could require developmental investments or have higher cost structures than our current arrangements, which could reduce operating margins and require more working capital.

Risks Related to our Common Stock

If the trading price of our Common Stock fails to comply with the continued listing requirements of the Nasdaq Capital Market, we would face possible delisting, which would result in a limited public market for our Common Stock and make obtaining future debt or equity financing more difficult for us.

Companies listed on Nasdaq are subject to delisting for, among other things, failure to maintain a minimum closing bid price of \$1.00 per share for 30 consecutive business days. On September 1, 2022, we received a letter from Nasdaq indicating that for the previous 30 consecutive business days, the closing bid price of our Common Stock fell below the minimum \$1.00 per share requirement pursuant to Nasdaq Listing Rule 5550(a)(2) and 5810(c)(3)(A) (the “Nasdaq Listing Rules”).

While the notification had no immediate effect on the listing of our Common Stock on Nasdaq, in accordance with the Nasdaq Listing Rules, we had 180 calendar days from the date of notification, or until February 28, 2023, to regain compliance with the minimum bid price requirement, during which time our Common Stock continued to trade on Nasdaq. On March 1, 2023, we received a letter from the Staff of Nasdaq notifying us that we had not regained compliance with the minimum bid price requirement as of February 28, 2023 and that we were not eligible for a second 180 day extension period.

The Company requested a hearing by the Nasdaq Hearings Panel (the “Panel”) of Nasdaq to appeal delisting determinations made by the Listing Qualifications Department (the “Staff”) of Nasdaq on March 1, 2023 for failure to comply with the bid price requirement of Nasdaq Listing Rule 5550(a)(2) (the “Bid Price Rule”) and on April 4, 2023 for failure to comply with the minimum stockholders equity required for continued listing on Nasdaq, or any of the alternative requirement to Nasdaq Listing Rule 5550(b) (the “Equity Rule”). At the Panel hearing, which occurred on April 20, 2023, the Company, represented by members of senior management and outside counsel, advised that the Company intends to regain compliance with the Bid Price Rule by effecting a reverse stock split. The Company also informed the Panel that it intends to regain compliance with the Equity Rule by completing one or more equity financings. As such, the Company proposed to the Panel a compliance plan that included a tentative schedule to complete the reverse stock split and equity financings and requested an extension of time to fully comply with Nasdaq listing requirements so that the Company could demonstrate to the Panel that it should not be delisted from Nasdaq.

On May 15, 2023, the Company received a letter (the “Letter”) from Nasdaq notifying the Company that the Panel had granted the Company’s request to continue its listing on Nasdaq until August 28, 2023, subject to certain conditions.

The Company intends to comply with the conditions set forth by the Panel, as stated in the Letter. There can be no assurance that the Panel will afford the Company more time to complete the compliance plan it articulated in the hearing, or that the Company will be able to remain in compliance with the applicable Nasdaq listing requirements on an ongoing basis. Further, we cannot guarantee that the price of our Common Stock will comply with the Nasdaq Listing Rules for continued listing on Nasdaq in the future.

If we cannot comply with the Nasdaq Listing Rules either now or in the future, our Common Stock would be subject to delisting and would likely trade on the over-the-counter market. If our Common Stock were to trade on the over-the-counter market, selling shares of our Common Stock could be more difficult because smaller quantities of shares would likely be bought and sold, transactions could be delayed, and security analysts’ coverage of us may be reduced. In addition, broker-dealers have certain regulatory burdens imposed upon them, which may discourage broker-dealers from effecting transactions in shares of our Common Stock, further limiting the liquidity of our Common Stock. As a result, the market price of our Common Stock may be depressed, and you may find it more difficult to sell shares of our Common Stock. Such delisting from Nasdaq and continued or further declines in our stock price could also greatly impair our ability to raise additional necessary capital through equity or debt financing.

If our shares of Common Stock become subject to the penny stock rules, it would become more difficult to trade our shares.

The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than \$5.00, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If we do not retain a listing on Nasdaq or another national securities exchange and if the price of our Common Stock is less

than \$5.00, our Common Stock could be deemed a penny stock. The penny stock rules require a brokerdealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks; and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our Common Stock, and therefore stockholders may have difficulty selling their shares.

Our stock price may be volatile, which could result in substantial losses to investors and litigation.

In addition to changes to market prices based on our results of operations and the factors discussed elsewhere in this "Risk Factors" section, the market price of and trading volume for our Common Stock may change for a variety of other reasons, not necessarily related to our actual operating performance. The capital markets have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our Common Stock. In addition, the average daily trading volume of the securities of small companies can be very low, which may contribute to future volatility. Factors that could cause the market price of our Common Stock to fluctuate significantly include:

- the results of operating and financial performance and prospects of other companies in our industry;
- strategic actions by us or our competitors, such as acquisitions or restructurings;
- announcements of innovations, increased service capabilities, new or terminated customers or new, amended or terminated contracts by our competitors;
- the public's reaction to our press releases, other public announcements, and filings with the Securities and Exchange Commission;
- lack of securities analyst coverage or speculation in the press or investment community about us or market opportunities in the smart glass industry;
- changes in government policies in the United States and, as our international business increases, in other foreign countries;
- changes in earnings estimates or recommendations by securities or research analysts who track our Common Stock or failure of our actual results of operations to meet those expectations;
- market and industry perception of our success, or lack thereof, in pursuing our growth strategy;
- changes in accounting standards, policies, guidance, interpretations or principles;
- any lawsuit involving us, our services or our products;
- arrival and departure of key personnel;
- sales of Common Stock by us, our investors or members of our management team; and
- changes in general market, economic and political conditions in the United States and global economies or financial markets, including those resulting from natural or man-made disasters.

Any of these factors, as well as broader market and industry factors, may result in large and sudden changes in the trading volume of our Common Stock and could seriously harm the market price of our Common Stock, regardless of our operating performance. This may prevent you from being able to sell your shares at or above the price you paid for your shares, if at all. In addition, following periods of volatility in the market price of a company's shares, stockholders often institute securities class action litigation against that company. Our involvement in any class action suit or other legal proceeding could divert our senior management's attention and could adversely affect our business, financial condition, results of operations and prospects.

Our certificate of incorporation and bylaws, and certain provisions of Delaware corporate law, contain provisions that could delay or prevent a change in control even if the change in control would be beneficial to our stockholders.

Delaware law, as well as our certificate of incorporation and bylaws, contain anti-takeover provisions that could delay or prevent a change in control of our company, even if the change in control would be beneficial to our stockholders. These provisions could lower the price that future investors might be willing to pay for shares of our Common Stock. These anti-takeover provisions:

- authorize our board of directors to create and issue, without stockholder approval, preferred stock, thereby increasing the number of outstanding shares, which can deter or prevent a takeover attempt;
- prohibit stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of our stockholders;
- establish a three-tiered classified board of directors requiring that not all members of our board be elected at one time;
- establish a supermajority requirement to amend our amended and restated bylaws and specified provisions of our amended and restated certificate of incorporation;
- prohibit cumulative voting in the election of directors, which would otherwise allow less than a majority of stockholders to elect director candidates;
- establish limitations on the removal of directors;
- empower our board of directors to fill any vacancy on our board of directors, whether such vacancy occurs as a result of an increase in the number of directors or otherwise;
- provide that our board of directors is expressly authorized to adopt, amend or repeal our bylaws;
- provide that our directors will be elected by a plurality of the votes cast in the election of directors;
- establish advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted on by our stockholders at stockholder meetings; and
- limit the ability of our stockholders to call special meetings of stockholders.

If equity research analysts do not publish research or reports about our business, or if they issue unfavorable commentary or downgrade our Common Stock, the market price of our Common Stock will likely decline.

The trading market for our Common Stock will rely in part on the research and reports that equity research analysts, over whom we have no control, publish about us and our business. We may never obtain research coverage by securities and industry analysts. If no securities or industry analysts commence coverage of our company, the market price for our Common Stock could decline. In the event we obtain securities or industry analyst coverage, the market price of our Common Stock could decline if one or more equity analysts downgrade our Common Stock or if those analysts issue unfavorable commentary, even if it is inaccurate, or cease publishing reports about us or our business.

As a newly Nasdaq-listed company, we will incur material increased costs and become subject to additional regulations and requirements.

As a newly Nasdaq-listed public company, we will incur material additional legal, accounting and other expenses including recruiting and retaining qualified independent directors, payment of annual Nasdaq fees, and satisfying Nasdaq standards for companies listed with it. Because our Common Stock is listed on the Nasdaq, we must meet certain financial and liquidity criteria to maintain such listing. If we violate Nasdaq listing requirements, our Common Stock may be delisted. If we fail to meet any of the Nasdaq's listing standards, our Common Stock may be delisted. In addition, our board of directors may determine that the cost of maintaining our listing on a national securities exchange outweighs the benefits of such listing. A delisting of our Common Stock from the Nasdaq may materially impair our stockholders' ability to buy and sell our Common Stock and could have an adverse effect on the market price of, and the efficiency of the trading market for, our Common Stock. The delisting of our Common Stock could significantly impair our ability to raise capital and the value of your investment.

We do not anticipate paying any dividends on our Common Stock for the foreseeable future.

We have not paid any dividends on our Common Stock to date, and we do not anticipate paying any such dividends in the foreseeable future. We anticipate that any earnings experienced by us will be retained to finance the implementation of our operational business plan and expected future growth.

If we fail to develop and maintain proper and effective internal control over financial reporting, our ability to produce timely and accurate financial statements, comply with applicable laws and regulations, or access the capital markets could be impaired.

As a public company, we have significant requirements for enhanced financial reporting and internal control over financial reporting. The process of designing and implementing effective internal control over financial reporting is a continuous effort that requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to maintain internal control over financial reporting that is adequate to satisfy our reporting obligations as a public company. If we are unable to establish or maintain appropriate internal control over financial reporting, it could cause us to fail to meet our reporting obligations on a timely basis, result in material misstatements in our financial statements, increase compliance costs, negatively impact share trading prices, and otherwise harm its results of operations. In addition, we will be required, pursuant to Section 404(a) of the Sarbanes-Oxley Act, or Section 404, to furnish a report by management on our assessment of the effectiveness of our internal control over financial reporting in the second annual report following the completion of our offering completed in January 2021 and uplisting to the Nasdaq.

This assessment will need to include disclosure of any material weaknesses identified in our internal control over financial reporting. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. Testing and maintaining our internal control over financial reporting may divert our management's attention from other matters that are important to its business.

Our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal control over financial reporting until after we are no longer an "emerging growth company" as defined in the JOBS Act. We may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404 or our independent registered public accounting firm may not issue an unqualified opinion. If either we are unable to conclude that we have effective internal control over financial reporting or our independent registered public accounting firm is unable to provide us with an unqualified report, investors could lose confidence in our reported financial information, which could have a material adverse effect on the trading price of our common stock.

We are an "emerging growth company" as defined in the JOBS Act and a "smaller reporting company" as defined in the Securities Exchange Act of 1934, as amended, or the Exchange Act, and are able to avail itself of reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies, which could make our Common Stock less attractive to investors and adversely affect the market price of our Common Stock in the future.

We are an "emerging growth company," as defined in the JOBS Act. We will remain an emerging growth company until the earlier of (i) the last day of our fiscal year in which we total annual gross revenue of at least \$1.07 billion; (ii) the last day of our first fiscal year following the fifth anniversary of our initial public offering; (iii) the date on which we have issued more than \$1 billion in non-convertible debt securities during the previous three years; or (iv) the date on which we are deemed to be a "large accelerated filer" under the rules of the SEC, which means the market value of our Common Stock that is held by non-affiliates exceeds \$700.0 million. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- not being required to comply with the auditor attestation requirements of Section 404;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board ("PCAOB") regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;

- providing only two years of audited financial statements in addition to any required unaudited interim financial statements and a correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure for certain filings;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholders approval of any golden parachute payments not previously approved.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to use the extended transition period for new or revised accounting standards during the period in which we remain an emerging growth company; however, we may adopt certain new or revised accounting standards early. Changes in rules of U.S. generally accepted accounting principles or their interpretation, the adoption of new guidance or the application of existing guidance to changes in our business could significantly affect our financial position and results of operations. In addition, our independent registered public accounting firm will not be required to provide an attestation report on the effectiveness of our internal control over financial reporting so long as we qualify as an “emerging growth company,” which may increase the risk that material weaknesses or significant deficiencies in our internal control over financial reporting go undetected. Likewise, so long as we qualify as a “smaller reporting company” or an “emerging growth company,” we may elect not to provide stockholders or investors with certain information, including certain financial information and certain information regarding compensation of our executive officers, that we would otherwise have been required to provide in filings we make with the SEC, which may make it more difficult for investors and securities analysts to evaluate our company.

We are a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that our voting and non-voting Common Stock held by non-affiliates is more than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue are more than \$100.0 million during the most recently completed fiscal year and our voting and non-voting Common Stock held by non-affiliates is more than \$700.0 million measured on the last business day of our second fiscal quarter.

We may choose to take advantage of some, but not all, of the available exemptions as an emerging growth company and a smaller reporting company. We will take advantage of reduced reporting burdens. We cannot predict whether investors will find our Common Stock less attractive if we rely on these exemptions. If some investors find our Common Stock less attractive as a result, there may be a less active trading market for our Common Stock and our stock price may be more volatile.

We are required by Section 404 of the Sarbanes-Oxley Act to evaluate the effectiveness of its internal control over financial reporting. If we are unable to achieve and maintain effective internal controls, our operating results and financial condition could be harmed.

We are an emerging growth company, and thus we are exempt from the auditor attestation requirement of Section 404(b) of Sarbanes-Oxley until such time as we no longer qualify as an emerging growth company. Regardless of whether we qualify as an emerging growth company, we will still need to implement substantial internal control systems and procedures in order to satisfy the reporting requirements under the Exchange Act and applicable requirements.

If we implement a reverse stock split, the liquidity of our Common Stock may be adversely effected.

Subject to stockholder approval at our annual meeting on August 11, 2023, we intend to effect a reverse stock split of our outstanding Common Stock, with our board of directors having the discretion as to the exact ratio of any reverse stock split, without a corresponding reduction in the total number of authorized shares of Common Stock. However, there can be no assurance that the market price per new share of our Common Stock after the reverse stock split will remain unchanged or increase in proportion to the reduction in the number of old shares of our Common Stock outstanding before the reverse stock split. The liquidity of the shares of our Common Stock may be affected adversely by any reverse stock split given the reduced number of shares of our Common Stock that will be outstanding following the reverse stock split, especially if the market price of our Common Stock does not increase as a result of the reverse

stock split. Following any reverse stock split, the resulting market price of our Common Stock may not attract new investors and may not satisfy the investing requirements of those investors. Although we believe that a higher market price of our Common Stock may help generate greater or broader investor interest, there can be no assurance that the reverse stock split will result in a share price that will attract new investors, including institutional investors. In addition, there can be no assurance that the market price of our Common Stock will satisfy the investing requirements of those investors. As a result, the trading liquidity of our Common Stock may not necessarily improve.

Risks Related to the Offering

This is a best efforts offering, no minimum amount of securities is required to be sold, and we do not expect to raise the amount of capital we believe is required for our business plans.

The placement agent has agreed to use its reasonable best efforts to solicit offers to purchase the securities being offered in this offering. The placement agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. There is no required minimum number of securities or amount of proceeds that must be sold as a condition to completion of this offering. Because there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, placement agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth above. We may sell fewer than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell an amount of securities sufficient to fund for our operations, as described under the heading “*Use of Proceeds*” on page 42 of this prospectus. Additionally, we do not expect to raise the amount of capital we believe is required for our operations, and will need to raise additional funds, which may not be available or available on terms acceptable to us, and we will continue to consider the other strategic alternatives under review in order to maximize stockholder value.

There is no public market for the Warrants or Pre-Funded Warrants.

There is no established public trading market for the Warrants or Pre-Funded Warrants offered hereby, and we do not expect a market to develop. In addition, we do not intend to apply to list the Warrants or Pre-Funded Warrants on any national securities exchange or other nationally recognized trading system, including Nasdaq. Without an active market, the liquidity of the Warrants and Pre-Funded Warrants will be limited.

The Warrants in this offering are speculative in nature.

Following this offering, the market value of the Warrants, if any, is uncertain and there can be no assurance that the market value of the Warrants will equal or exceed their imputed public offering price. In the event that our Common Stock price does not exceed the exercise price of the Warrants during the period when such Warrants are exercisable, such Warrants may not have any value. Furthermore, each Warrant will expire five years from its initial exercise date.

Holders of the Warrants and Pre-Funded Warrants will not have rights of holders of our shares of Common Stock until such Warrants or Pre-Funded Warrants are exercised.

The Warrants and Pre-Funded Warrants in this offering do not confer any rights of share ownership on their holders, but rather merely represent the right to acquire shares of our Common Stock at a fixed price. Until holders of Warrants or Pre-Funded Warrants acquire shares of our Common Stock upon exercise of the Warrants or Pre-Funded Warrants, holders of Warrants or Pre-Funded Warrants will have no rights with respect to our shares of Common Stock underlying such Warrants or Pre-Funded Warrants.

If you purchase shares of Common Stock in this offering, you will incur immediate and substantial dilution in the book value of the shares of our Common Stock.

The proposed public offering price of the shares of our Common stock is substantially higher than the as adjusted net tangible book value per share of our Common Stock. Investors purchasing securities in this offering will pay a price per share of Common Stock that substantially exceeds the as adjusted book value of our tangible assets after subtracting our liabilities. As a result, investors purchasing securities in this offering will incur immediate dilution of \$[] per share of Common Stock, based on an assumed combined public offering price of \$[] per share of Common Stock and accompanying Warrant (assuming no sale of Pre-Funded Warrants). As a result of the dilution to

investors purchasing securities in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. Further, because we may need to raise additional capital to fund our anticipated level of operations, we may in the future sell substantial amounts of Common Stock or securities convertible into or exchangeable for Common Stock.

Additionally, as of March 31, 2022, we had exercisable outstanding options, warrants and other convertible securities that if exercised would result in the issuance of [] shares of our Common Stock. Further, we are authorized to grant equity awards, including stock grants and stock options, to our employees, directors and consultants. As of March 31, 2023, there were [] shares available for future issuance under the Company's equity incentive plans.

Future sales or issuances of Common Stock, convertible securities or other equity securities, may cause investors to be materially diluted, and new investors could gain rights, preferences and privileges senior to our existing stockholders.

Our ability to utilize our net operating loss carryforwards may be limited as a result of an "ownership change," as defined in Section 382 of the Internal Revenue Code.

As of December 31, 2022, we had approximately \$34.2 million of net operating loss ("NOL") carryforwards for U.S. federal tax purposes. Under U.S. federal income tax law, we generally can use our NOL carryforwards (and certain tax credits) to offset ordinary taxable income, thereby reducing our U.S. federal income tax liability, for up to 20 years from the year in which the losses were generated, after which time they will expire. State NOL carryforwards (and certain tax credits) generally may be used to offset future state taxable income for 20 years from the year in which the losses are generated, depending on the state, after which time they will expire. The rate at which we can utilize our NOL carryforwards is limited (which could result in NOL carryforwards expiring prior to their use) each time we experience an "ownership change," as determined under Section 382 of the Internal Revenue Code. A Section 382 ownership change generally occurs if a shareholder or a group of shareholders who are deemed to own at least 5% of our Common Stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. If an ownership change occurs, Section 382 generally would impose an annual limit on the amount of post-ownership change taxable income that may be offset with pre-ownership change NOL carryforwards equal to the product of the total value of our outstanding equity immediately prior to the ownership change (reduced by certain items specified in Section 382) and the U.S. federal long-term tax-exempt interest rate in effect at the time of the ownership change. A number of special and complex rules apply in calculating this Section 382 limitation. The complexity of Section 382 makes it difficult to determine whether and when an ownership change has occurred, and a portion of our NOLs could become subject to an annual limitation under Section 382. In addition, our ability to use our NOL carryforwards will be limited to the extent we fail to generate enough taxable income in the future before they expire. Existing and future Section 382 limitations and our inability to generate enough taxable income in the future could result in a substantial portion of our NOL carryforwards expiring before they are used. In addition, under the 2017 Tax Cut and Jobs Act, effective for losses arising in taxable years beginning after December 31, 2017, the deduction for NOLs is limited to 80 percent of taxable income, NOLs can no longer be carried back, and NOLs can be carried forward indefinitely.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains various forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, which represent our expectations or beliefs concerning future events. Forward-looking statements include statements that are predictive in nature, which depend upon or refer to future events or conditions, and/or which include words such as “believes,” “plans,” “intends,” “anticipates,” “estimates,” “expects,” “may,” “will,” “continues,” “should” or the negative of these words and phrases or similar words or phrases which are predictions of or indicate future events or trends and which do not relate solely to historical matters. In addition, any statements concerning future financial performance, ongoing strategies or prospects, and possible future actions, including any potential strategic transaction involving us, which may be provided by our management, are also forward-looking statements. These statements are not guarantees of future performance, and we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events, or otherwise, except as required by law.

Forward-looking statements are based on current expectations and projections about future events, actual events and results may differ materially from those expressed or forecasted in forward-looking statements due to a number of factors. You should understand that the following important factors, in addition to those discussed in under the heading “*Risk Factors*” included elsewhere in this prospectus and in any of our filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, could affect our stock price or future results and could cause those results to differ materially from those expressed in such forward-looking statements:

- our prospects, including our future business, revenues, expenses, net income, earnings per share, gross margins, profitability, cash flows, cash position, liquidity, financial condition and results of operations, backlog of orders and revenue, our targeted growth rate, our goals for future revenues and earnings, and our expectations about realizing the revenues in our backlog and in our sales pipeline;
- the potential impact of COVID-19 on our business and results of operations;
- the effects on our business, financial condition and results of operations of current and future economic, business, market and regulatory conditions, including the current economic and market conditions and their effects on our customers and their capital spending and ability to finance purchases of our products, services, technologies and systems;
- the effects of fluctuations in sales on our business, revenues, expenses, net income, earnings per share, margins, profitability, cash flows, capital expenditures, liquidity, financial condition and results of operations;
- our products, services, technologies and systems, including their quality and performance in absolute terms and as compared to competitive alternatives, their benefits to our customers and their ability to meet our customers’ requirements, and our ability to successfully develop and market new products, services, technologies and systems;
- our markets, including our market position and our market share;
- our ability to successfully develop, operate, grow and diversify our operations and businesses;
- our business plans, strategies, goals and objectives, and our ability to successfully achieve them;
- the sufficiency of our capital resources, including our cash and cash equivalents, funds generated from operations and other capital resources, to meet our future working capital, capital expenditure and business growth needs;
- the value of our assets and businesses, including the revenues, profits and cash flows they are capable of delivering in the future;
- the effects on our business operations, financial results, and prospects of business acquisitions, combinations, sales, alliances, ventures and other similar business transactions and relationships;

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- industry trends and customer preferences and the demand for our products, services, technologies and systems; and
- the nature and intensity of our competition, and our ability to successfully compete in our markets.

These statements are necessarily subjective, are based upon our current plans, intentions, objectives, goals, strategies, beliefs, projections and expectations, and involve known and unknown risks, uncertainties and other important factors that could cause our actual results, performance or achievements, or industry results, to differ materially from any future results, performance or achievements described in or implied by such statements. Actual results may differ materially from expected results described in our forward-looking statements, including with respect to correct measurement and identification of factors affecting our business or the extent of their likely impact, the accuracy and completeness of the publicly-available information with respect to the factors upon which our business strategy is based, or the success of our business.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately \$[] based on the sale of [] shares of Common Stock and accompanying Warrants at an assumed combined public offering price of \$[] per share of Common Stock and accompanying Warrant, which is equal to the last reported sale price per share of our Common Stock on The Nasdaq Capital Market on [], 2023, after deducting the placement agent fees and estimated offering expenses payable by us, and assuming no exercise of the Warrants being issued in this offering and no sale of Pre-Funded Warrants. However, because this is a best efforts offering and there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, the placement agent's fees and net proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth on the cover page of this prospectus.

As of the date of this prospectus, we cannot predict with certainty all the uses for the net proceeds to be received upon the completion of this offering. We intend to use proceeds from this offering for working capital, strategic, and other general corporate purposes. We have not allocated specific amounts of net proceeds for any of these purposes.

We do not expect to raise the amount of capital we believe is required for our operations, and will need to raise additional funds, which may not be available or available on terms acceptable to us, and we will continue to consider the other strategic alternatives under review in order to maximize stockholder value.

MARKET FOR COMMON STOCK AND DIVIDEND POLICY

Market Information and Number of Stockholders

Our Common Stock is listed on the Nasdaq Capital Market under the symbol “CRKN.” The last reported closing price for our Common Stock on Nasdaq on August 11, 2023 was \$0.058 per share.

Based upon information furnished by our transfer agent, as of [], 2023 there were approximately [] holders of record of our Common Stock.

Dividend Policy

We have never declared or paid any cash dividends on shares of our Common Stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our Board of Directors. Accordingly, investors must rely on sales of their Common Stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

CAPITALIZATION

The following table sets forth our actual cash and cash equivalents and our capitalization as of March 31, 2023, as retrospectively adjusted to reflect our Reverse Stock Split:

- on an actual basis;
- on an as adjusted basis to give effect to the events above and the issuance and sale of [] shares of our Common Stock and accompanying Warrants to purchase up to [] shares of our Common Stock at a combined assumed public offering price of \$[] per share and accompanying Warrant, after deducting placement agent fees and estimated offering expenses payable by us (assuming no sale of Pre-Funded Warrants).

You should read this information in conjunction with “*Management’s Discussion and Analysis of Financial Condition and Results of Operations*” and our consolidated financial statements and related notes for the three months ended March 31, 2023 and for the fiscal year ended December 31, 2022, included in our Annual Report on Form 10-K for the year ended December 31, 2022 and our Quarterly Report on Form 10Q for the quarter ended March 31, 2023, both of which are incorporated by reference herein.

	As of March 31, 2023 (unaudited)	
(in thousands)	Actual	As Adjusted
Cash and Cash Equivalents:	\$ 2,138	
Total Current Liabilities:	9,016	
Total Long-Term Liabilities:	1,208	
Stockholders’ Equity (Deficit):		
Common Stock, par value \$0.0001 per share: 800,000,000 shares authorized and 43,686,523 shares outstanding, actual; shares authorized and [] shares outstanding, as adjusted		4
Preferred Stock, undesignated, authorized 50,000,000 shares		
Series A preferred stock, par value \$0.0001; 300 shares authorized, 251 shares outstanding as of March 31, 2023 Series B preferred stock, par value \$0.0001; 1,500 shares authorized, 1,443 shares outstanding as of March 31, 2023 Series C preferred stock, par value \$0.0001; 600,000 shares authorized, 500,756 shares outstanding as of March 31, 2023 Series D preferred stock, par value \$0.0001; 7,000 shares authorized, 1,058 shares issued and outstanding as of March 31, Series E preferred stock, par value \$0.0001; 77,000 shares authorized, 5,000 shares outstanding as of March 31,		—
Additional paid-in capital	98,051	
Accumulated deficit	(90,311)	
Total stockholders’ equity	\$ 7,744	

A \$_____ increase in the assumed combined public offering price of \$_____ per share of Common Stock and accompanying Warrant (which is based on the last reported closing price of our Common Stock of \$_____ per share on _____), would increase cash and cash equivalents and total stockholders’ equity by approximately \$_____, assuming the number of shares of Common Stock and accompanying Warrants offered by us, as set forth on the cover of this prospectus, remains the same and after deducting placement agent fees and estimated offering expenses payable by us and assuming no sale of Pre-Funded Warrants. The as adjusted information discussed above is illustrative only and will adjust based on the actual combined public offering price and other terms of this offering determined at pricing.

The total number of shares of our Common Stock reflected in the discussion and table above is based on [] shares outstanding as of March 31, 2023, as retrospectively adjusted to reflect our Reverse Stock Split, and excludes:

- 9,423,486 shares of Common Stock issuable upon the exercise of options of which 8,521,662 have vested at a weighted average exercise price of \$2.80 per share as of March 31, 2023;
- 36,019,595 shares of Common Stock issuable upon the exercise of warrants (excluding the Warrants) of which 36,019,595 are exercisable at a weighted average exercise price of \$0.65 per share as of March 31, 2023;

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- 628,781 shares of Common Stock issuable upon the vesting of restricted stock units of which 497,913 have vested;
- 9,884,772 shares of Common Stock issuable upon the conversion of 251 shares of Series A Preferred Stock and 1,443 shares of Series B Preferred Stock, and 500,576 shares of Series C Preferred Stock, 1,058 shares of Series D Preferred Stock, and 5,000 shares of Series E Preferred Stock;
- 8,991,782 shares of Common Stock issuable upon the conversion of outstanding convertible promissory notes, based on a conversion price of \$0.495.

Unless otherwise indicated, all information in this prospectus reflects or assumes no exercises of any outstanding stock options or warrants.

DILUTION

If you invest in the securities being offered by this prospectus, your interest will be diluted immediately to the extent of the difference between the combined public offering price per share of Common Stock and accompanying Warrant and the as adjusted net tangible book value per share of our Common Stock after this offering.

Our historical net tangible book value as of March 31, 2023 was \$6.0 million, or \$0.14 per share of our Common Stock. Historical net tangible book value per share represents the amount of our total tangible assets, less total liabilities, divided by the number of shares of our Common Stock outstanding as of March 31, 2022.

After giving effect to the sale in this offering of [] shares of Common Stock and accompanying Warrants offered by this prospectus (assuming a combined public offering price of \$[] per share of Common Stock and accompanying Warrant), and after deducting the placement agent fees and estimated offering expenses payable by us, assuming no exercise of the Warrants and no sale of Pre-Funded Warrants, our as adjusted net tangible book value as of March 31, 2023 would have been approximately \$[] or approximately \$[] per share. This represents an immediate decrease in as adjusted net tangible book value of approximately \$[] per share to our existing stockholders and an immediate dilution in as adjusted net tangible book value of approximately \$[] per share to purchasers of our securities in this offering, as illustrated by the following table:

Combined assumed public offering price per share of Common Stock and accompanying Warrant	\$	[]
Increase (decrease) in as adjusted net tangible per share attributable to investors in this offering	\$	[]
As adjusted net tangible book value per share, as adjusted to give effect to this offering	\$	[]
Dilution in as adjusted net tangible book value per share to investors in this offering	\$	[]

A \$[] increase in the assumed combined public offering price of \$[] per share and accompanying Warrant (which is based on the last reported closing price of our Common Stock of \$[] per share on [], 2023), would increase our as adjusted net tangible book value after giving effect to this offering by approximately \$[] and the dilution to our as adjusted net tangible book value per share to new investors in this offering by \$[] per share, assuming the number of shares of Common Stock and accompanying Warrants offered by us, as set forth on the cover of this prospectus, remains the same and after deducting placement agent fees and estimated offering expenses payable by us and assuming no exercise of the accompanying Warrants and no sale of Pre-Funded Warrants.

The total number of shares of our Common Stock reflected in the discussion and table above is based on [] shares outstanding as of March 31, 2023, as retrospectively adjusted to reflect our Reverse Stock Split, and excludes:

- 9,423,486 shares of Common Stock issuable upon the exercise of options of which 8,521,662 have vested at a weighted average exercise price of \$2.80 per share as of March 31, 2023;
- 36,019,595 shares of Common Stock issuable upon the exercise of warrants (excluding the Warrants) of which 36,019,595 are exercisable at a weighted average exercise price of \$0.65 per share as of March 31, 2023;
- 628,781 shares of Common Stock issuable upon the vesting of restricted stock units of which 497,913 have vested;
- 9,884,772 shares of Common Stock issuable upon the conversion of 251 shares of Series A Preferred Stock and 1,443 shares of Series B Preferred Stock, and 500,576 shares of Series C Preferred Stock, 1,058 shares of Series D Preferred Stock, and 5,000 shares of Series E Preferred Stock;
- 8,991,782 shares of Common Stock issuable upon the conversion of outstanding convertible promissory notes, based on a conversion price of \$0.495.

Unless otherwise indicated, all information in this prospectus reflects or assumes no exercises of any outstanding stock options or warrants.

To the extent that our outstanding options or warrants are exercised or converted, as applicable, you could experience further dilution. To the extent that we raise additional capital through the sale of additional equity, the issuance of any of our shares of Common Stock could result in further dilution to our stockholders.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth, as of August 14, 2023, information regarding beneficial ownership of our capital stock by:

- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our Common Stock;
- each of our Named Executive Officers;
- each of our directors; and
- all of our executive officers and directors as a group.

The percentage ownership information shown in the table prior to this offering is based upon 111,950,769 shares of Common Stock outstanding as of August 14, 2023. The percentage ownership information shown in the table after this offering is based upon [] shares of Common Stock (based on the sale of [] shares of Common Stock in this offering) outstanding as of such date, assuming no exercise of any Warrants and no sale of Pre-Funded Warrants.

Name of Beneficial Owner and Address ⁽¹⁾	Common Stock Beneficially Owned Prior to this Offering ⁽²⁾		Common Stock Beneficially Owned After this Offering ⁽²⁾	
	Shares	% ⁽³⁾	Shares	% ⁽³⁾
<i>Officers and Directors</i>				
Croxall Family Trust ⁽⁴⁾	4,212,382	3.8%	[]	[]%
Timothy Koch ⁽⁵⁾	1,644,004	*	[]	[]%
Joel Krutz ⁽⁶⁾	366,666	*	[]	*
Dr. DJ Nag ⁽⁷⁾	87,023	*	[]	*
Daniel Marcus	7,000	*	[]	*
All current officers and directors as a group (5 persons)	6,317,076	5.39%	[]	[]%

* Less than 1.0%

(1) Unless otherwise noted, all addresses are c/o Crown Electrokinetics Corp., at 11601 Wilshire Blvd., Suite 2240, Los Angeles, California 90025.

(2) A person is considered to beneficially own any shares: (i) over which such person, directly or indirectly, exercises sole or shared voting or investment power, or (ii) of which such person has the right to acquire beneficial ownership at any time within 60 days (such as through exercise of stock options or warrants). Unless otherwise indicated, voting and investment power relating to the shares shown in the table for our directors and executive officers is exercised solely by the beneficial owner or shared by the owner and the owner's spouse or children.

(3) Based upon 111,950,769 shares of Common Stock outstanding on August 14, 2023. The percentage ownership shown after this offering is based upon [] shares of Common Stock (based on the sale of [] shares of Common Stock in this offering) outstanding as of such date, assuming no exercise of any Warrants and no sale of Pre-Funded Warrants.

(4) Includes options to purchase 3,399,006 shares of our Common Stock and 45,834 vested restricted stock units.

(5) Includes options to purchase 1,224,905 shares of our Common Stock and 19,099 vested restricted stock units.

(6) Includes 344,444 vested restricted stock units and options to purchase 22,222 shares of our Common Stock.

(7) Includes 37,024 vested restricted stock units and options to purchase 49,999 shares of our Common Stock.

DESCRIPTION OF SECURITIES THAT WE ARE OFFERING

We are offering [] shares of our Common Stock and accompanying Warrants to purchase up to an aggregate of [] shares of our Common Stock, which number of shares of Common Stock and accompanying Warrants are based on an assumed combined public offering price of \$[] per share of Common Stock and accompanying Warrant. Each share of our Common Stock is being sold together with a Warrant to purchase [one share] of our Common Stock. The shares of our Common Stock will be issued separately from the accompanying Warrants. We are also registering the shares of our Common Stock issuable from time to time upon exercise of the Warrants offered hereby. The following descriptions of our Common Stock, Warrants and certain provisions of our Certificate of Incorporation, as amended, our Bylaws and Delaware law are summaries. You should also refer to our Charter and our Bylaws, which are filed as exhibits to the registration statement of which this prospectus is part.

Authorized Capital Stock

Our authorized capital stock consists of 800,000,000 shares of Common Stock, par value \$0.0001 per share, and 50,000,000 shares of preferred stock, par value \$0.0001 per share, including 300 shares of Series A Preferred Stock, 1,500 shares of Series B Preferred stock, 600,000 shares of Series C Preferred Stock, 7,000 shares of Series D Preferred Stock, 77,000 shares of Series E Preferred Stock, 9,073 shares of Series F Preferred Stock, 9,052 shares of Series F-1 Preferred Stock, and 9,052 of Series F-2 Preferred Stock. As of August 14, 2023, 111,950,769 shares of Common Stock were issued and outstanding, 251 shares of Series A Preferred Stock were issued and outstanding, 1,443 shares of Series B Preferred Stock were issued and outstanding, 500,756 shares of Series C Preferred Stock were issued and outstanding, 0 shares of Series D Preferred Stock were issued and outstanding, 0 shares of Series E Preferred Stock were issued and outstanding, 5,251 shares of Series F Preferred Stock were issued and outstanding, 1,723 shares of Series F-1 Preferred Stock were issued and outstanding, and 1,153 shares of Series F-2 Preferred Stock were issued and outstanding.

Common Stock

Our Common Stock is traded on Nasdaq under the symbol “CRKN.” The registrar and transfer agent for our Common Stock is VStock Transfer, LLC, located at 18 Lafayette Place Woodmere, New York 11598.

Voting, Dividend and Other Rights. Each outstanding share of Common Stock entitles the holder to one vote on all matters presented to the shareholders for a vote. Holders of shares of Common Stock have no cumulative voting, preemptive, subscription or conversion rights. All shares of Common Stock to be issued pursuant to this registration statement will be duly authorized, fully paid and non-assessable. Our Board of Directors determines if and when distributions may be paid out of legally available funds to the holders. To date, we have not declared any dividends with respect to our Common Stock. Our declaration of any cash dividends in the future will depend on our Board of Directors’ determination as to whether, in light of our earnings, financial position, cash requirements and other relevant factors existing at the time, it appears advisable to do so. We do not anticipate paying cash dividends on the Common Stock in the foreseeable future.

Rights Upon Liquidation. Upon liquidation, subject to the right of any holders of the preferred stock to receive preferential distributions, each outstanding share of Common Stock may participate pro rata in the assets remaining after payment of, or adequate provision for, all our known debts and liabilities.

Majority Voting. The holders of a majority of the outstanding shares of Common Stock constitute a quorum at any meeting of the shareholders. A plurality of the votes cast at a meeting of shareholders elects our directors. The Common Stock does not have cumulative voting rights. Therefore, the holders of a majority of the outstanding shares of Common Stock can elect all of our directors. In general, a majority of the votes cast at a meeting of shareholders must authorize shareholder actions other than the election of directors. Most amendments to our certificate of incorporation require the vote of the holders of a majority of all outstanding voting shares.

Warrants

The following summary of certain terms and provisions of the Warrants offered hereby is subject to the form of Warrant, which will be filed as an exhibit to the registration statement of which this prospectus is a part. Prospective investors should carefully review the terms and provisions set forth in the form of Warrant.

- *Duration and Exercise Price.* The Warrants will have an exercise price of \$ _____ per share, which is _____ % of the combined public offering price per share of our Common Stock and accompanying Warrant in this offering. The Warrants will be immediately exercisable and will expire on the fifth anniversary of the original issuance date. The exercise price and number of shares of Common Stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our Common Stock and the exercise price. The Common Stock in this offering will be issued separately from the accompanying Warrants and may be transferred separately immediately thereafter.
- *Exercisability.* The Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full in immediately available funds for the number of shares of our Common Stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). No fractional shares of Common Stock will be issued in connection with the exercise of a Warrant. In lieu of fractional shares, we will round down to the next whole share.
- *Exercise Limitation.* A holder will not have the right to exercise any portion of the Warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or, upon election of the holder, 9.99%) of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Warrants. However, any holder may increase or decrease such percentage, not to exceed 9.99%, provided that any increase will not be effective until the sixty-first (61st) day after such election.
- *Cashless Exercise.* If, at the time a holder exercises its Warrants, a registration statement registering the issuance of the shares of Common Stock underlying the Warrants under the Securities Act is not then effective or available, then in lieu of making the cash payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the Warrants.
- *Transferability.* Subject to applicable laws, a Warrant may be transferred at the option of the holder upon surrender of the Warrant to us together with the appropriate instruments of transfer. Subject to applicable laws, a Warrant in book entry form may be transferred at the option of the holder through the facilities of the Depository Trust Company and Warrants in physical form may be transferred upon surrender of the Warrant to the warrant agent together with the appropriate instruments of transfer. Pursuant to a warrant agency agreement between us and Direct Transfer LLC, as warrant agent, the Warrants initially will be issued in book-entry form and will be represented by one or more global certificates deposited with The Depository Trust Company ("DTC") and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.
- *Exchange Listing.* There is no trading market available for the Warrants on any securities exchange or nationally recognized trading system. We do not intend to list the Warrants on any securities exchange or nationally recognized trading system.
- *Right as a Stockholder.* Except as otherwise provided in the Warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the Warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, until the holder exercises their Warrants.
- *Fundamental Transaction.* In the event of a fundamental transaction, as described in the form of Warrant, and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another entity, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the Warrants will be entitled to receive upon exercise of the Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Warrants immediately prior to such fundamental transaction.

Pre-Funded Warrants

The following summary of certain terms and provisions of the Pre-Funded Warrants offered hereby is subject to the provisions of the form of Pre-Funded Warrant, which will be filed as an exhibit to the registration statement of which this prospectus is a part. Prospective investors should carefully review the terms and provisions set forth in the form of Pre-Funded Warrant.

- *Duration and Exercise Price.* Each Pre-Funded Warrant offered hereby will have an initial exercise price per share equal to \$0.001. The Pre-Funded Warrants will be immediately exercisable and may be exercised at any time until the Pre-Funded Warrants are exercised in full. The exercise price and number of shares of Common Stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our Common Stock and the exercise price. The Pre-Funded Warrants will be issued separately from the accompanying Warrants and may be transferred separately immediately thereafter.
- *Exercisability.* The Pre-Funded Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full in immediately available funds for the number of shares of our Common Stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). No fractional shares of Common Stock will be issued in connection with the exercise of a Pre-Funded Warrant. In lieu of fractional shares, we will round down to the next whole share.
- *Exercise Limitation.* A holder will not have the right to exercise any portion of the Pre-Warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or, upon election of the holder, 9.99%) of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Pre-Funded Warrants. However, any holder may increase or decrease such percentage, not to exceed 9.99%, provided that any increase will not be effective until the 61st day after such election.
- *Cashless Exercise.* In lieu of making a cash payment of the aggregate exercise price of the Pre-Funded Warrant, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the Pre-Funded Warrants.
- *Transferability.* Subject to applicable laws, a Pre-Funded Warrant may be transferred at the option of the holder upon surrender of the Pre-Funded Warrant to us together with the appropriate instruments of transfer.
- *Exchange Listing.* There is no trading market available for the Pre-Funded Warrants on any securities exchange or nationally recognized trading system. We do not intend to list the Pre-Funded Warrants on any securities exchange or nationally recognized trading system.
- *Right as a Stockholder.* Except as otherwise provided in the Pre-Funded Warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the Pre-Funded Warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, until the holder exercises their Pre-Funded Warrants.
- *Fundamental Transaction.* In the event of a fundamental transaction, as described in the Pre-Funded Warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another entity, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the Pre-Funded Warrants will be entitled to receive upon exercise of the Pre-Funded Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Pre-Funded Warrants immediately prior to such fundamental transaction.

Anti-Takeover Effects of Certain Provisions of Our Articles of Incorporation, as Amended, and Our Bylaws

Our certificate of incorporation and our Bylaws contain certain provisions that could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions and certain provisions of Delaware law, which are summarized below, may discourage coercive takeover practices and inadequate takeover bids. These provisions also may encourage persons seeking to acquire control of us to first negotiate with our Board of Directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Undesignated Preferred Stock. As discussed above, our Board of Directors has the ability to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in our control or management.

Delaware Anti-Takeover Statute. We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging, under certain circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- Prior to the date of the transaction, the Board of Directors of the corporation approved either the business combination or the transaction that resulted in the stockholder's becoming an interested stockholder;
- Upon completion of the transaction that resulted in the stockholder's becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- At or subsequent to the date of the transaction, the business combination is approved by the Board of Directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our Board of Directors does not approve in advance. We also anticipate that Section 203 may discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

The provisions of Delaware law and the provisions of our certificate of incorporation and Bylaws, as amended, could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO HOLDERS OF COMMON STOCK, WARRANTS AND PRE-FUNDED WARRANTS

The following is a summary of the material U.S. federal income tax consequences of the acquisition, ownership and disposition of our Common Stock, and the acquisition, ownership, exercise, expiration, or disposition of the Warrants and Pre-Funded Warrants (which we sometimes refer to herein as our “securities” and holders thereof as “holders”), but does not purport to be a complete analysis of all the potential U.S. federal income tax considerations relating thereto. This summary is based upon the provisions of the Code, Treasury Regulations promulgated thereunder, administrative rulings and judicial decisions, all as in effect as of the date hereof. These authorities may be changed or subject to differing interpretations, possibly with retroactive effect, so as to result in U.S. federal income tax consequences different from those set forth below. We have not sought and will not seek any ruling from the Internal Revenue Service (the “IRS”), with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

Because each share of Common Stock or Pre-Funded Warrant to purchase one share of Common Stock is being sold together with a Warrant to purchase [one share] of Common Stock and are immediately separable upon issuance, a holder will be treated, for U.S. federal income tax purposes, as the owner of the Common Stock or Pre-Funded Warrant, as applicable, and the Warrant.

This summary assumes that any distributions made (or deemed made) by us on our securities and any consideration received (or deemed received) by a holder in consideration for the sale or other disposition of our securities will be in U.S. dollars. This summary also does not address the tax considerations arising under the laws of any U.S. state or local or any non-U.S. jurisdiction, estate or gift tax, the 3.8% Medicare tax on net investment income, or any alternative minimum tax consequences. In addition, this discussion does not address tax considerations applicable to a holder’s particular circumstances or to a holder that may be subject to special tax rules, including, without limitation:

- banks, insurance companies or other financial institutions;
- Regulated investment companies or real estate investment trusts;
- tax-exempt or government organizations;
- brokers or dealers in securities or currencies;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- persons that own, or are deemed to own, more than five percent of our capital stock and/or our Pre Funded Warrants;
- certain U.S. expatriates or certain former citizens or long-term residents of the United States;
- persons that hold our securities as a position in a hedging transaction, “straddle,” “conversion transaction,” synthetic security, other integrated investment, or other risk reduction transaction;
- persons that do not hold our securities as a capital asset within the meaning of Section 1221 of the Code (generally, for investment purposes);
- persons deemed to sell our securities under the constructive sale provisions of the Code;
- pension plans;
- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes, or investors in any such entities;
- persons subject to special accounting rules as a result of any item of gross income with respect to our securities being taken into account in an applicable financial statement;
- persons for whom our stock constitutes “qualified small business stock” within the meaning of Section 1202 of the Code;
- integral parts or controlled entities of foreign sovereigns;

- controlled foreign corporations;
- passive foreign investment companies and corporations that accumulate earnings to avoid U.S. federal income tax; or
- persons who acquire our securities as compensation for services.

In addition, if a partnership or other entity or arrangement classified as a partnership for U.S. federal income tax purposes holds our securities, the tax treatment of a partner generally will depend on the status of the partner, the activities of the partnership, and certain determinations made at the partner level. Accordingly, entities or arrangements taxable as a partnership that hold our securities, and owners in such partnerships, should consult their tax advisors regarding the U.S. federal income tax consequences to them of the purchase, ownership, and disposition of our securities.

This summary of U.S. federal income tax considerations is for general information purposes only and is not tax advice. You are urged to consult your tax advisor with respect to the application of the U.S. federal income tax laws to your particular situation, as well as any tax consequences of the purchase, ownership, and disposition of our Common Stock, and the acquisition, ownership, exercise, expiration, or disposition of the Warrants and Pre-Funded Warrants arising under the U.S. federal estate or gift tax rules, under the laws of any U.S. state or local or any non-U.S. or other taxing jurisdiction, or under any applicable tax treaty.

Definition of a U.S. Holder

For purposes of this summary, a “U.S. Holder” is any beneficial owner of our securities that is a “U.S. person,” and is neither a partnership nor an entity or arrangement treated as a partnership or disregarded from its owner for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following: (i) a citizen or individual resident of the United States, (ii) a corporation created in, or organized under the laws of, the United States or any state thereof or the District of Columbia, (iii) an estate whose income is subject to United States federal income tax regardless of its source, or (iv) a trust (A) the administration of which is subject to the primary supervision of a U.S. court and which has one or more United States persons (within the meaning of Section 7701(a)(30) of the Code) who have the authority to control all substantial decisions of the trust or (B) that has a valid election in effect under applicable Treasury Regulations to be treated as a United States person under the Code.

For purposes of this summary, a “Non-U.S. Holder” is any beneficial owner of our securities that is not (i) a U.S. Holder, (ii) a partnership or other entity or arrangement treated as a partnership, or (iii) an entity or arrangement treated as disregarded from its owner, each for U.S. federal income tax purposes.

Allocation of Purchase Price

For U.S. federal income tax purposes, the amount paid to purchase our Common Stock, Pre-Funded Warrants and Warrants will be apportioned between them in proportion to the respective fair market values of the Common Stock, Pre-Funded Warrant and Warrants, and the apportioned amount will be the tax basis of the Common Stock, Pre-Funded Warrant and Warrants respectively. The fair market value of our Common Stock for this purpose will generally be its trading value immediately after issuance.

General Tax Treatment of Pre-Funded Warrants

Although not entirely free from doubt, a Pre-Funded Warrant should be treated as common stock for U.S. federal income tax purposes, and a holder of Pre-Funded Warrants therefore should generally be taxed in the same manner as a purchaser and holder of a share of our Common Stock, as described below. Accordingly, no gain or loss should be recognized upon the exercise of a Pre-Funded Warrant, and upon exercise, the holding period of a Pre-Funded Warrant should carry over to the shares of Common Stock received in exchange therefor. Similarly, the tax basis of the Pre-Funded Warrant should carry over to the shares of Common Stock received upon exercise, increased by the exercise price of \$0.001 per share. A U.S. Holder may, in its sole discretion, elect to exercise the Pre-Funded Warrant through a cashless exercise. The U.S. federal income tax treatment of a cashless exercise of Pre-Funded Warrants into our Common Stock is unclear and the tax consequences of a cashless exercise could differ from the tax consequences described above. Each prospective investor is urged to consult his, her or its tax advisors regarding the tax considerations and risks associated with the acquisition of Pre-Funded Warrants pursuant to this offering (including the consequences of a cashless exercise of Pre-Funded Warrants and potential alternative characterizations).

The balance of this discussion generally assumes that the characterization described above is respected for U.S. federal income tax purposes, and the discussion below, to the extent it pertains to shares of our Common Stock, is generally intended also to pertain to Pre-Funded Warrants, except as otherwise indicated.

Tax Consequences to U.S. Holders

Distributions on Common Stock

As discussed above under the heading “*Market for Common Stock and Dividend Policy*,” we do not currently expect to make distributions on our Common Stock. If we were to make distributions of cash or other property, distributions paid on Common Stock, other than certain pro rata distributions of Common Stock or rights to acquire Common Stock, will be treated as a dividend to the extent paid out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles) and will be includible in income by a U.S. Holder and taxable as ordinary income when received. If a distribution exceeds our current and accumulated earnings and profits, the excess will be first treated as a tax-free return of the U.S. Holder’s investment, which will reduce a U.S. Holder’s tax basis, but not below zero, in the Common Stock. Any remaining excess will be treated as gain realized on the sale or exchange of a U.S. Holder’s Common Stock as described below under the section titled “*Sale or Other Disposition of Common Stock*” If certain requirements are met, dividends paid to certain non-corporate U.S. Holders may be eligible for taxation as “qualified dividend income” and therefore may be taxable at rates applicable to long-term capital gains. Dividends received by a corporate U.S. Holder will be eligible for the dividends-received deduction if the U.S. Holder meets certain holding period and other applicable requirements. No assurance can be given that we will have sufficient earnings and profits (as determined for U.S. federal income tax purposes) to cause any distributions to be eligible for a dividends received deduction. U.S. Holders should consult their tax advisers regarding the availability of the reduced tax rate on dividends or dividends-received deduction in their particular circumstances.

A holder of a Pre-Funded Warrant should consult his, her or its tax advisor regarding the tax treatment of any distribution received with respect to such Pre-Funded Warrant that is held in abeyance in connection with any applicable beneficial ownership cap.

Constructive Dividends on Warrants

Under Section 305 of the Code, an adjustment to the number of shares of Common Stock that will be issued on the exercise of the Warrants, or an adjustment to the exercise price of the Warrants, may be treated as a constructive distribution to a U.S. Holder of the Warrants if, and to the extent that, such adjustment has the effect of increasing such U.S. Holder’s proportionate interest in our “earnings and profits” or assets, depending on the circumstances of such adjustment (for example, if such adjustment is to compensate for a distribution of cash or other property to our stockholders). However, adjustments to the exercise price of a Warrant made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing dilution of the interest of the holders of the Warrants generally should not result in a constructive distribution. Any constructive distributions would be treated as though the U.S. Holder received a cash distribution generally equal to the fair market value of the increased interest and would generally be subject to the tax treatment described above under “*Distributions on Common Stock*.” For certain information reporting purposes, we are required to determine the date and amount of any constructive distributions. Proposed Treasury Regulations, which we may rely on prior to the issuance of final regulations, specify how the date and amount of constructive distributions are determined.

Sale or Other Disposition of Common Stock

For U.S. federal income tax purposes, gain or loss realized on the sale, exchange or other taxable disposition of Common Stock will be capital gain or loss, and will be long-term capital gain or loss if the U.S. Holder held the Common Stock for more than one year. The amount of the gain or loss will equal the difference between the U.S. Holder’s tax basis in the Common Stock disposed of and the amount realized on the disposition. Long-term capital gains recognized by non-corporate U.S. Holders will be subject to reduced tax rates. The deductibility of capital losses is subject to limitations.

Sale, Other Disposition, or Exercise of Warrants

For U.S. federal income tax purposes, gain or loss realized on a U.S. Holder's sale, exchange or other taxable disposition of a Warrant (other than by exercise) will be capital gain or loss and will be long-term capital gain or loss if the U.S. Holder held the Warrant for more than one year at the time of the sale, exchange or other taxable disposition. The amount of the gain or loss will equal the difference between the U.S. Holder's tax basis in the Warrant disposed of and the amount realized on the disposition. Long-term capital gains recognized by non-corporate U.S. Holders will be subject to reduced tax rates. The deductibility of capital losses is subject to limitations.

In general, a U.S. Holder will not be required to recognize income, gain, or loss upon the exercise of a Warrant by payment of the exercise price. A U.S. Holder's tax basis in a share of Common Stock received upon exercise will be equal to the sum of (i) the U.S. Holder's tax basis in the Warrant and (ii) the exercise price of the Warrant. It is unclear whether a U.S. Holder's holding period for the Common Stock received will commence on the date of exercise of the Warrant or the day following the date of exercise of the Warrant; in either case, the holding period will not include the period during which the U.S. Holder held the Warrant. The tax consequences of a cashless exercise of a Warrant are not clear under current law, and no discussion is provided herein regarding the U.S. federal income tax treatment of the exercise of a Warrant on a cashless basis. U.S. Holders are urged to consult their tax advisors as to the exercise of a Warrant on a cashless basis.

Expiration of Warrants or Pre-Funded Warrants

If a Warrant or Pre-Funded Warrant expires without being exercised, a U.S. Holder will recognize a capital loss in an amount equal to such U.S. Holder's tax basis in the Warrant or Pre-Funded Warrant. This loss will be long-term capital loss if, at the time of the expiration, the U.S. Holder's holding period in the Warrant or Pre-Funded Warrant is more than one year. The deductibility of capital losses is subject to limitations.

Backup Withholding and Information Reporting

In general, information reporting requirements will apply and information returns may be filed with the IRS in connection with distributions on our Common Stock or constructive dividends on the Warrants or Pre-Funded Warrants, and the proceeds of a sale, exchange or other taxable disposition of the securities, paid to U.S. Holders other than certain exempt recipients (such as corporations). Dividend payments made by us to a U.S. Holder will be subject to backup withholding (at a current rate of 24%), unless the U.S. Holder provides to us a certification, under penalties of perjury, of the U.S. Holder's taxpayer identification number, or the U.S. Holder otherwise establishes an exemption. The requisite certification may be made on an IRS Form W-9.

Backup withholding is not an additional tax. Amounts withheld from a U.S. Holder under the backup withholding rules are generally allowable as a credit against the holder's U.S. federal income tax liability, and the U.S. Holder may obtain a refund of any amounts withheld in excess of the U.S. Holder's actual U.S. federal income tax liability, provided that the required information is timely furnished to the IRS.

Tax Consequences to Non-U.S. Holders

Distributions

As discussed under the heading "*Market for Common Stock and Dividend Policy*," we do not anticipate paying any dividends on our Common Stock in the foreseeable future. If we make distributions on our securities (including constructive dividends made with respect to the Warrants, as described above under "*Tax Consequences to Non-U.S. Holders — Constructive Dividends on Warrants*"), those payments will constitute dividends for U.S. federal income tax purposes to the extent we have current or accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent those distributions exceed both our current and our accumulated earnings and profits, they will constitute a return of capital and will first reduce a Non-U.S. Holder's basis in our securities, but not below zero. Any excess will be treated as gain realized on the sale or exchange of our securities as described below under "*Gain on Sale, Exchange or Other Disposition of Our Common Stock or Warrants*." Any portion of such distributions treated as dividends would be subject to the discussions in this section, as well as the discussions below regarding backup withholding and the Foreign Account Tax Compliance Act.

Subject to the discussion below on effectively connected income, any dividend paid to a Non-U.S. Holder generally will be subject to U.S. withholding tax either at a rate of 30% of the gross amount of the dividend or such lower rate as may be specified by an applicable income tax treaty between the United States and the Non-U.S. Holder's country of residence. To receive a reduced treaty rate, a Non-U.S. Holder must provide us or our withholding agent with an IRS Form W-8BEN, IRS Form W-8 BEN-E, or another appropriate version of IRS Form W-8 (or a successor form), which must be provided prior to the payment of dividends and updated periodically, and which, in each case, must certify qualification for the reduced rate. If a Non-U.S. Holder holds stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to such agent. The holder's agent may then be required to provide certification to us or the applicable withholding agent, either directly or through other intermediaries. Non-U.S. Holders should consult their tax advisors regarding their entitlement to benefits under any applicable income tax treaty.

Dividends paid to a Non-U.S. Holder that are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, are attributable to a permanent establishment or fixed base that the holder maintains in the United States) generally are exempt from the (gross basis) withholding tax described above. To obtain this exemption from withholding tax, the Non-U.S. Holder must provide us or the applicable withholding agent with an IRS Form W-8ECI or other applicable IRS Form W-8 certifying that the dividends are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States. Such effectively connected dividends, if not eligible for relief under a tax treaty, would not be subject to a withholding tax, but would be taxed at the same graduated rates applicable to U.S. persons, net of certain deductions and credits. A Non-U.S. Holder is a corporation receiving effectively connected dividends may also be subject to a branch profits tax at a rate of 30% (or such lower rate as may be specified by an applicable income tax treaty).

If you are eligible for a reduced rate of withholding tax pursuant to a tax treaty, you may be able to obtain a refund of any excess amounts withheld if you timely file an appropriate claim for refund with the IRS.

The taxation of a distribution received with respect to a Pre-Funded Warrant is unclear. It is possible such a distribution would be treated as a distribution as described in this section, although other treatments may also be possible. Non-U.S. Holders should consult their tax advisors regarding the proper treatment of any payments in respect of the Pre-Funded Warrants.

Exercise of Warrants

In general, a Non-U.S. Holder will not be required to recognize income, gain, or loss upon the exercise of a Warrant by payment of the exercise price. The tax consequences of a cashless exercise of a Warrant are not clear under current law, and no discussion is provided herein regarding the U.S. federal income tax treatment of the exercise of a Warrant on a cashless basis. Non-U.S. Holders are urged to consult their own tax advisors as to the tax consequences of the exercise of a Warrant on a cashless basis.

Expiration of Warrants or Pre-Funded Warrants

Expiration of a Warrant or Pre-Funded Warrant will be treated as if the Non-U.S. Holder sold or exchanged the Warrant or Pre-Funded Warrant and recognized a capital loss equal to the Non-U.S. Holder's tax basis in such Warrant or Pre-Funded Warrant as described below under the section titled "*Gain on Sale, Exchange or Other Disposition of Our Securities*." However, a Non-U.S. Holder will not be able to utilize a loss recognized upon expiration of a Warrant or a Pre-Funded Warrant against the Non-U.S. Holder's U.S. federal income tax liability unless the loss is effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if an income tax treaty applies, is attributable to a permanent establishment or fixed base maintained by the Non-U.S. Holder in the United States) or is treated as a U.S.-source loss and the Non-U.S. Holder is present 183 days or more in the taxable year of disposition and certain other conditions are met.

Gain on Sale, Exchange or Other Disposition of Our Securities

Subject to the discussion below regarding backup withholding and FATCA, a Non-U.S. Holder generally will not be subject to U.S. federal income or withholding tax on any gain realized upon the sale, exchange or other taxable disposition of our securities unless:

- the gain is effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States, and if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed base maintained by the Non-U.S. Holder in the United States, in which case the Non-U.S. Holder will be required to pay tax on the net gain derived from the sale under regular graduated U.S. federal income tax rates, and for a Non-U.S. Holder that is a corporation, such Non-U.S. Holder may be subject to an additional branch profits tax at a 30% rate (or such lower rate as may be specified by an applicable income tax treaty) on such effectively connected gain, as adjusted for certain items;
- the Non-U.S. Holder is an individual who is present in the United States for a period or periods aggregating 183 days or more during the calendar year in which the sale, exchange or other taxable disposition occurs and certain other conditions are met, in which case the Non-U.S. Holder will be required to pay a flat 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the gain derived therefrom, which tax may be offset by U.S. source capital losses (even though the Non-U.S. Holder is not considered a resident of the United States); or
- we are, or have been at any time within the shorter of the five-year period preceding the disposition or the Non-U.S. Holder's holding period for our securities, a "U.S. real property holding corporation" (a "USRPHC") for U.S. federal income tax purposes. Generally, a corporation is a USRPHC if the fair market value of its "United States real property interests" equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we believe we are not currently and do not anticipate becoming a USRPHC.

Backup Withholding and Information Reporting

The amount of distributions on Common Stock or constructive dividends on the Warrants or Pre-Funded Warrants paid to a Non-U.S. Holder, and the amount of any U.S. federal tax withheld therefrom, must be reported annually to the IRS and the holder. This information may be made available by the IRS under the provisions of an applicable tax treaty or agreement to the tax authorities of the country in which the Non-U.S. Holder resides.

In addition, a Non-U.S. Holder may be subject to U.S. information reporting and backup withholding on dividends received with respect to, or proceeds from a sale or exchange of, our securities, unless the Non-U.S. Holder complies with certification procedures to establish that the holder is not a U.S. person (within the meaning of the Code). The certification requirements generally will be satisfied if the Non-U.S. Holder provides the applicable withholding agent with a statement on the applicable IRS Form W-8BEN or IRS Form W-8BEN-E (or suitable substitute or successor form), together with all appropriate attachments, signed under penalties of perjury, stating, among other things, that such Non-U.S. Holder is not a U.S. person. Applicable Treasury Regulations provide alternative methods for satisfying this requirement.

Payment of the proceeds of the sale or other disposition of the securities to or through a non-U.S. office of a U.S. broker or of a non-U.S. broker with certain specified U.S. connections generally will be subject to information reporting requirements, but not backup withholding, unless the Non-U.S. Holder certifies under penalties of perjury that it is not a U.S. person or an exemption otherwise applies. Payments of the proceeds of a sale or other disposition of the securities to or through a U.S. office of a broker generally will be subject to information reporting and backup withholding, unless the Non-U.S. Holder certifies under penalties of perjury that it is not a U.S. person or otherwise establishes an exemption.

Backup withholding is not an additional tax. The amount of any backup withholding generally will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Account Tax Compliance Act

The Foreign Account Tax Compliance Act and the rules and regulations promulgated thereunder, collectively “FATCA,” generally imposes a 30% withholding tax on certain types of payments made to foreign financial institutions and certain other non-U.S. entities. The withholding tax generally applies to dividends (including constructive dividends) on, and, subject to the discussion of certain proposed Treasury Regulations below, gross proceeds from the sale or other disposition of, our securities paid to a “foreign financial institution” or to certain “non-financial foreign entities” (each as defined in the Code), unless (i) the foreign financial institution undertakes certain diligence and reporting obligations, (ii) the non-financial foreign entity either certifies it does not have any “substantial United States owners” (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (iii) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in clause (i) above, it must enter into an agreement with the U.S. Treasury requiring, among other things, that it undertake to identify accounts held by “specified United States persons” or “United States-owned foreign entities” (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on payments to account holders whose actions prevent it from complying with these reporting and other requirements. If the country in which a payee is resident has entered into an “intergovernmental agreement” with the United States regarding FATCA, that agreement may permit the payee to report to that country rather than to the U.S. Department of the Treasury.

Proposed revisions to Treasury Regulations provisions were released in 2018, which, if finalized in their present form, would eliminate the FATCA withholding tax applicable to the gross proceeds of a sale or other disposition of our securities. The preamble to such proposed revisions states that taxpayers may generally rely on the proposed provisions until final regulations are issued. Prospective investors should consult their own tax advisors regarding the possible impact of these rules on their investment in our securities, and the possible impact of these rules on the entities through which they hold our securities, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of this 30% withholding tax under FATCA.

THE PRECEDING DISCUSSION IS FOR GENERAL INFORMATION ONLY. IT INTENDED ONLY AS A SUMMARY OF CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES REGARDING OUR SECURITIES AND DOES NOT PURPORT TO BE A COMPLETE ANALYSIS OR DISCUSSION OF ALL POTENTIAL TAX CONSEQUENCES RELEVANT THERETO. EACH PROSPECTIVE INVESTOR SHOULD CONSULT HIS, HER, OR ITS OWN TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL, STATE, LOCAL, AND NON -U.S. TAX CONSEQUENCES OF PURCHASING, HOLDING, AND DISPOSING OF OUR SECURITIES, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

PLAN OF DISTRIBUTION

Pursuant to a placement agency agreement, dated as of _____, 2023, we have engaged Roth Capital Partners, LLC to act as our lead placement agent to solicit offers to purchase the securities offered by this prospectus on a reasonable best efforts basis. The placement agent is not purchasing or selling any securities, nor is it required to arrange for the purchase and sale of any specific number or dollar amount of securities, other than to use its “reasonable best efforts” to arrange for the sale of the securities by us. Therefore, we might not sell the entire amount of securities being offered, or any at all. The placement agent may engage one or more subagents or selected dealers in connection with this offering.

We will enter into a securities purchase agreement directly with the institutional investors, at the investor’s option, who purchase our securities in this offering. Investors who do not enter into a securities purchase agreement shall rely solely on this prospectus in connection with the purchase of our securities in this offering.

The placement agency agreement provides that the placement agent’s obligations are subject to the conditions contained in the placement agency agreement.

We will deliver the securities being issued to the investors upon receipt of investor funds for the purchase of the securities offered pursuant to this prospectus. We expect to deliver the securities being offered pursuant to this prospectus on or about _____, 2023. There is no minimum number of securities or amount of proceeds that is a condition to closing of this offering.

Placement Agent Fees, Commissions and Expenses

Upon the closing of this offering, we will pay the placement agent a cash transaction fee equal to 8.0% of the aggregate gross proceeds to us from the sale of the securities in the offering. In addition, we will reimburse the placement agent for its out-of-pocket expenses incurred in connection with this offering, including the fees and expenses of the counsel for the placement agent, up to \$100,000.

The following table shows the public offering price, placement agent fees and proceeds, before expenses, to us, assuming the purchase of all the securities we are offering.

	Per Share and Common Warrant	Per Pre-Funded Warrant and Common Warrant
Public offering price	\$	\$
Placement Agent fees	\$	\$
Proceeds to us, before expenses	\$	\$

We estimate that the total expenses of the offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding placement agent fees, will be approximately \$, all of which are payable by us. This figure includes the placement agent’s accountable expenses, including, but not limited to, legal fees for placement agent’s legal counsel, that we have agreed to pay at the closing of the offering up to an aggregate expense reimbursement of \$100,000.

Lock-Up Agreements

We and our executive officers and directors expect to enter into lock up agreements with the representative prior to the commencement of this offering pursuant to which each of these persons or entities, for a period of [] days from the effective date of the registration statement of which this prospectus forms a part, without the prior consent of the representative, agree not to (a) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file (or participate in the filing of) a registration statement with the SEC in respect of, any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; (b) enter into any swap or other arrangement that transfers, in whole or in part, any of the economic consequences of ownership of our capital stock, whether any such transaction described in (a) above or (c) below is to be settled by delivery of shares of our capital stock or such other securities, in cash or otherwise; or

(c) make any demand for or exercise any right with respect to, the registration of any share of our capital stock or any security convertible into or exercisable or exchangeable for shares of our capital stock; or (d) publicly announce an intention to effect any transaction specified in (a), (b) or (c) above.

[Leak-Out Agreements]

Investors in this offering have agreed to enter into leak-out agreements wherein each investor who is party thereto (together with certain of its affiliates) will agree not to sell, dispose or otherwise transfer, directly or indirectly (including, without limitation, any sales, short sales, swaps or any derivative transactions that would be equivalent to any sales or short positions), on any trading day, shares of our common stock, including shares of common stock purchased in this offering and the shares of common stock issuable upon exercise of the Warrants, in an amount more than a specified percentage of the trading volume of our common stock on the principal trading market, subject to certain exceptions. This restriction will not apply to any actual “long” (as defined in Regulation SHO promulgated under the Exchange Act) sales by such investor (together with certain of its affiliates) (i) at prices greater than \$[] (as adjusted for stock splits, stock dividends, stock combinations, recapitalizations or other similar events) and (ii) purchased in open market transactions by such investor (together with certain of its affiliates). Further, this restriction will not apply to sales or transfers of any such shares of common stock in transactions which do not need to be reported on the Nasdaq consolidated tape so long as the purchaser or transferee executes and delivers a leak-out agreement. After such sale or transfer, future sales of the securities covered by the leak-out agreement entered into by the original owner (together with certain of its affiliates) and the purchaser or transferee will be aggregated to determine compliance with the terms of the leak-out agreement.]

Indemnification

We have agreed to indemnify the placement agent against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the placement agent may be required to make for these liabilities.

Determination of Offering Price and Warrant Exercise Price

The actual public offering price of the securities we are offering, and the exercise price of the common warrants and pre-funded warrants that we are offering, will be negotiated between us, the placement agent and the investors in the offering based on the trading price of our common stock prior to the offering, among other things. Other factors that will be considered in determining the public offering price of the securities we are offering, as well as the exercise price of the common warrants and pre-funded warrants that we are offering include our history and prospects, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, the general conditions of the securities markets at the time of the offering and such other factors as are deemed relevant.

Other Compensation

If within six (6) months following the termination or expiration of our engagement with the placement agent, we complete any sale of equity or equity-linked securities for which the placement agent is not acting as underwriter or placement agent (other than the exercise by any person or entity of any options, warrants or other convertible securities) to any of the investors that the placement agent introduced to us or with which the placement agent conducted discussions on our behalf, subject to specified exceptions, then we are required to pay to the placement agent a commission as described in this section, in each case only with respect to the portion of such financing received from such investors.

Regulation M

The placement agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the securities sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, the placement agent would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of our securities by the placement agent acting as principal. Under these rules

and regulations, the placement agent (i) may not engage in any stabilization activity in connection with our securities and (ii) may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until it has completed its participation in the distribution.

Electronic Distribution

A prospectus in electronic format may be made available on a website maintained by the placement agent. In connection with the offering, the placement agent or selected dealers may distribute prospectuses electronically. No forms of electronic prospectus other than prospectuses that are printable as Adobe® PDF will be used in connection with this offering.

Other than the prospectus in electronic format, the information on the placement agent's website and any information contained in any other website maintained by the placement agent is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the placement agent in its capacity as placement agent and should not be relied upon by investors.

Certain Relationships

The placement agent and its affiliates may in the future also provide, from time to time, other investment banking and financial advisory services to us in the ordinary course of business, for which they may receive customary fees and commissions.

The Nasdaq Capital Market Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol "CRKN."

Offer Restrictions Outside the United States

European Economic Area

In relation to each member state of the European Economic Area, no offer of securities which are the subject of the offering has been, or will be made to the public in that Member State, other than under the following exemptions under the Prospectus Directive:

- (a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- (b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Representatives for any such offer; or
- (c) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of securities referred to in (a) to (c) above shall result in a requirement for the Company or the placement agent to publish a prospectus pursuant to Article 3 of the Prospectus Directive, or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

Each person located in a Member State to whom any offer of securities is made or who receives any communication in respect of an offer of securities, or who initially acquires any shares of our securities will be deemed to have represented, warranted, acknowledged and agreed to and with the placement agent and the Company that (1) it is a "qualified investor" within the meaning of the law in that Member State implementing Article 2(1)(e) of the Prospectus Directive; and (2) in the case of any shares of our securities acquired by it as a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, the securities acquired by it in the offer have not been acquired on behalf of, nor have they been acquired with a view to their offer or resale to, persons in any Member State other than qualified investors, as that term is defined in the Prospectus Directive, or in circumstances in which the prior consent of the placement agent has been given to the offer or resale; or where our securities have been acquired by it on behalf of persons in any Member State other than qualified investors, the offer of those securities to it is not treated under the Prospectus Directive as having been made to such persons.

The Company, the placement agent and their respective affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgments and agreements.

This prospectus has been prepared on the basis that any offer of our securities in any Member State will be made pursuant to an exemption under the Prospectus Directive from the requirement to publish a prospectus for offers of shares. Accordingly, any person making or intending to make an offer in that Member State of our securities which are the subject of the offering contemplated in this prospectus may only do so in circumstances in which no obligation arises for the Company or the placement agent to publish a prospectus pursuant to Article 3 of the Prospectus Directive in relation to such offer. Neither the Company nor the placement agent have authorized, nor do they authorize, the making of any offer of securities in circumstances in which an obligation arises for the Company or the placement agent to publish a prospectus for such an offer.

For the purposes of this provision, the expression an “offer of our securities to the public” in relation to any of our securities in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe for the securities, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression “Prospectus Directive” means Directive 2003/71/EC (as amended) and includes any relevant implementing measure in each Member State. The above selling restriction is in addition to any other selling restrictions set out below.

Notice to Prospective Investors in the United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are “qualified investors” (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19 (5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the “Order”) and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”). This document must not be acted on or relied on in the United Kingdom by persons who are not relevant persons. In the United Kingdom, any investment or investment activity to which this document relates is only available to, and will be engaged in with, relevant persons.

Notice to Prospective Investors in Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange (“SIX”) or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to our securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company or our securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of our securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA (FINMA), and the offer of our securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes (“CISA”). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of our securities.

Notice to Prospective Investors in the Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority (“DFSA”). This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The securities to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Notice to Prospective Investors in Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission (“ASIC”), in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001 (the “Corporations Act”) and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of our securities may only be made to persons (the “Exempt Investors”) who are “sophisticated investors” (within the meaning of section 708(8) of the Corporations Act), “professional investors” (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the securities without disclosure to investors under Chapter 6D of the Corporations Act.

The securities applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring our securities must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Notice to Prospective Investors in Hong Kong

The securities have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the securities has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Notice to Prospective Investors in Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) and, accordingly, will not be offered or sold, directly or indirectly, in Japan, or for the benefit of any Japanese Person or to others for re-offering or resale, directly or indirectly, in Japan or to any Japanese Person, except in compliance with all applicable laws, regulations and ministerial guidelines promulgated by relevant Japanese governmental or regulatory authorities in effect at the relevant time. For the purposes of this paragraph, “Japanese Person” shall mean any person resident in Japan, including any corporation or other entity organized under the laws of Japan.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of securities may not be circulated or distributed, nor may the securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore

(the “SFA”), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries’ rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the securities pursuant to an offer made under Section 275 of the SFA except:

- (a) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- (b) where no consideration is or will be given for the transfer;
- (c) where the transfer is by operation of law;
- (d) as specified in Section 276(7) of the SFA; or
- (e) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Notice to Prospective Investors in Canada

The securities may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the securities must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser’s province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser’s province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 *Underwriting Conflicts* (**NI 33-105**), the placement agent is not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

DIRECTORS

Name	Age	Position	Director Since
Douglas Croxall	54	Chairman and Chief Executive Officer	2015
Daniel Marcus ⁽¹⁾⁽²⁾⁽³⁾	57	Director	2022
Dr. DJ Nag ⁽¹⁾⁽²⁾⁽³⁾	55	Director	2020

(1) Member of Audit Committee.

(2) Member of Compensation Committee.

(3) Member of Governance and Nominating Committee.

Douglas Croxall. Mr. Croxall is the Chief Executive Officer and Chairman of the Board of Directors of the Company. Prior to co-founding the Company, Mr. Croxall was the CEO and Chairman of the Board of Directors of Marathon Patent Group from November 2012 until December 2017. Mr. Croxall holds a BA degree from Purdue University and an MBA from Pepperdine University.

Dr. DJ Nag. Dr. Nag has served as a member of the Company's Board of Directors since July 2020. Dr. Nag is the Chief Investment Officer at Ventech Solutions, a healthcare technology company that manages quality data for the Center for Medicare and Medicaid Services (CMS). He has successfully led Ohio State University, Rutgers University and University of Nebraska's technology transfer operations that included licensing, startup and investments. As an entrepreneur, he led a number of start-ups in the intellectual property strategy, artificial intelligence, and medical device space. As a consultant in patent monetization and intellectual property strategy, he has worked with many Fortune 500 companies, universities, and national governments. He was a Director of Ocean Tomo and a Vice President at ICAP Ocean Tomo, leading patent transaction markets. He was recognized as one of the top IP strategists by IAM300 in 2019. Dr. Nag was on the Board of the Association of University Technology Managers, Inc. (AUTM) from 2012 to 14, focused on educating the members around world on the importance of technology transfer and intellectual property. He is widely recognized as a global intellectual property strategist working with government and universities in Poland, Japan, India, Turkey, Brazil, South Korea, Ukraine and many other countries. Currently, he teaches intellectual property strategy and negotiations as a Professor of Practice at Rutgers University and a Visiting Professor at Shizuoka University. He volunteers as the first Executive-in-Residence at the Dublin City Schools, leading a startup academy for high school students and serves on the foundation board at the Dublin Methodist Hospital.

Daniel Marcus. Mr. Marcus has served as a member of the Company's Board of Directors since October 2022. Mr. Marcus is the Principal and Founder of Marcus Capital. Prior to forming Marcus Capital in 2004, Mr. Marcus worked at Bear Stearns as a managing director and has over 25 years of investment experience. He earned his Bachelors of Business Degree in Economics from the University of Wisconsin-Madison. In addition to forming Marcus Capital, Mr. Marcus is a founding partner of Spark Ventures, a non-profit charitable organization. Mr. Marcus has been involved with various charities including 10 years as a Child Life Specialist at Children's Memorial Hospital, Chicago and two years at The Night Ministry, working to serve homeless and runaway youth.

EXECUTIVE OFFICERS

Name	Age	Position
Joel Krutz	49	Chief Financial Officer
Timothy Koch	62	Chief Technology Officer

Joel Krutz is our Chief Financial Officer. Joel Krutz is an experienced executive in finance and operations, with a history in building and developing financial reporting. Most recently, Mr. Krutz had served as CFO for ViacomCBS Networks International ("VCNI"), the premium content companies international division since 2015. As CFO of VCNI, Mr. Krutz successfully steered the business through a transformational period of expansion, diversification, and growth. Prior to his role as CFO of VCNI, Mr. Krutz held a number of progressive London and New York based CFO and senior strategic finance roles for Viacom where he built and developed financial infrastructure to support

businesses through a range of rapid growth, turnaround, and portfolio optimization challenges. Originally from New Zealand, Mr. Krutz received a Bachelor of Management Studies with an Accounting major from Waikato University, obtained his professional CIMA qualification from the UK's Association of Chartered Management Accountants, and CTAMU certification from Harvard Business School's Executive program.

Timothy Koch is our Chief Technology Officer. Prior to co-founding Crown, he was in charge of the R&D team at HP that invented electrokinetic (EK) technology. He has over 30 years of engineering and management experience in both technology development and product manufacturing. He holds a BS from Cornell University and a MS from Stanford University, both degrees in Material Science & Engineering. He has also completed an Executive Development Program from the Cornell University Johnson Graduate School of Management.

CORPORATE GOVERNANCE

Director Independence

The Board of Directors utilizes NASDAQ's standards for determining the independence of its members. In applying these standards, the Board considers commercial, industrial, banking, consulting, legal, accounting, charitable and familial relationships, among others, in assessing the independence of directors, and must disclose any basis for determining that a relationship is not material. The Board has determined that Dr. DJ Nag and Daniel Marcus are independent directors within the meaning of the NASDAQ independence standards. In making these independence determinations, the Board did not exclude from consideration as immaterial any relationship potentially compromising the independence of any of the above directors.

Committees of the Board of Directors

The Board of Directors has established and currently maintains the following three standing committees: the Audit Committee, the Compensation Committee, and the Governance and Nominating and Committee (the "G&NC").

Currently, the Audit Committee consists of Mr. Marcus (Chair) and Dr. Nag, the Compensation Committee consists of Mr. Marcus (Chair) and Dr. Nag, and the G&NC consists of Dr. Nag (Chair) and Mr. Marcus.

Audit Committee. Among other functions, the Audit Committee authorizes and approves the engagement of the independent registered public accounting firm, reviews the results and scope of the audit and other services provided by the independent registered public accounting firm, reviews our financial statements, reviews and evaluates our internal control functions, approves or establishes pre-approval policies and procedures for all professional audit and permissible non-audit services provided by the independent registered public accounting firm and reviews and approves any proposed related party transactions. The Board of Directors has determined that each of the current members of the Audit Committee is an independent director within the meaning of the NASDAQ independence standards and Rule 10A-3 promulgated by the SEC under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). In addition, the Board of Directors has determined that Mr. Marcus qualifies as an Audit Committee Financial Expert under applicable SEC Rules and that each of the members of the Audit Committee satisfies the NASDAQ standards of financial literacy and financial or accounting expertise or experience.

Compensation Committee. The Compensation Committee's functions include reviewing and approving the compensation and benefits for our executive officers, administering our equity compensation plans and making recommendations to the Board of Directors regarding these matters. The Board of Directors has determined that each current member of the Compensation Committee is an independent director within the meaning of the NASDAQ independence standards.

Governance and Nominating Committee. The G&NC searches for and recommends to the Board of Directors potential nominees for director positions and makes recommendations to the Board of Directors regarding the size, composition and compensation of the Board of Directors and its committees. The Board of Directors has determined that each current member of the G&NC is an independent director within the meaning of the NASDAQ independence standards.

Board Leadership Structure and Role in Risk Oversight

Our Board of Directors is currently chaired by Mr. Croxall, who also serves as our Chief Executive Officer, having been engaged in such roles since the Company's inception. The Board does not believe that it is appropriate to prohibit one person from serving as both Chairman of the Board and Chief Executive Officer. Our Board will continually evaluate our leadership structure and could in the future decide to separate the Chairman and Chief Executive Officer positions if it believes that doing so would serve the best interests of our company and its stockholders.

The Board of Directors has not named a lead independent director. However, to strengthen the voice of our independent directors, we provide that such directors meet on a regular basis, and we have provided that all of the members of the Audit Committee, the Compensation Committee and the G&NC are independent.

Our Board of Directors and the Audit Committee thereof is responsible for overseeing the risk management processes on behalf of our company. The Board and, to the extent applicable, the Audit Committee, receive and review periodic reports from management, auditors, legal counsel and others, as considered appropriate regarding our company's assessment of risks. Where applicable, the Audit Committee reports regularly to the full Board of Directors with respect to risk management processes. The Audit Committee and the full Board of Directors focus on the most significant risks facing our company and our company's general risk management strategy, and also ensure that risks undertaken by our company are consistent with the Board's appetite for risk. While the Board oversees the risk management of our company, management is responsible for day-to-day risk management processes. We believe this division of responsibilities is the most effective approach for addressing the risks facing our company and that our Board leadership structure supports this approach.

Family Relationships

There are no familial relationships between any of our executive officers and directors.

Director or Officer Involvement in Certain Legal Proceedings

Our directors and executive officers were not involved in any legal proceedings as described in Item 401(f) of Regulation S-K in the past ten years.

BUSINESS

Overview

We develop and sell optical switching film that can be embedded between sheets of glass or applied to the surface of glass, or other rigid substrates such as acrylic, to electronically control opacity (“DynamicTint™”). Originally developed by Hewlett-Packard (“HP”), our technology allows a transition between clear and dark in seconds and can be applied to a wide array of windows, including commercial buildings, automotive sunroofs, and residential skylights and windows. At the core of our proprietary and patent-protected technology is a thin film that is powered by electrically charged pigment which can reduce heat gain replacing common window tints but also providing a more sustainable alternative to blinds and other traditional window treatments. We partner with leading glass and film manufacturers for mass production and distribution of DynamicTint.

Electrokinetic Film Technology

Our electrokinetic (EK) technology was derived from proprietary ink and microfluidic technology developed at HP. Electrokinetic refers to the movement of particles within a fluid under the influence of an electric field. Our EK film technology utilizes nanometer-sized pigment particles that are electrically charged and suspended in a liquid that is sandwiched between two clear substrates that are coated with a transparent conductor oxide (TCO) film. *Figure 1.* In a non-energized state, the suspended pigment particles are distributed uniformly between the plastic films, and will absorb, transmit, or reflect light depending on the properties of the suspended pigment (dark state). When the proper electrical signal is applied to the conductive TCO layers, an electrical field is created, and the charged pigment particles collect in micro-embossed holes in a layer of polymer resin covering the transparent conductor surface. As the charged pigment particles are collected, the fluid becomes highly transparent (clear state). By applying a different electrical signal, the pigment can be dispersed back into the fluid to achieve the desired color density or opacity.

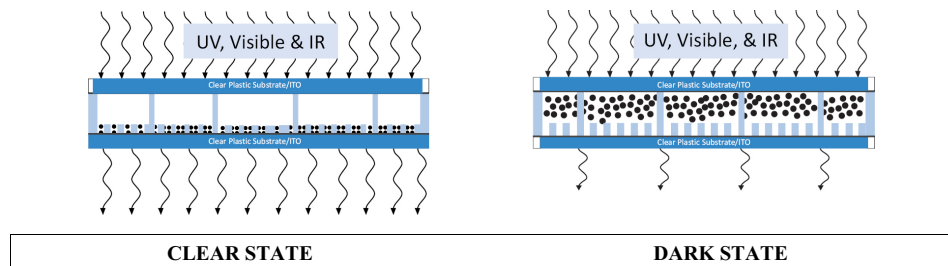


Figure 1. Schematic cross-section of electrokinetic film in clear and dark states.

Highlights

- **Clear Polyethylene Terephthalate (PET) Substrates** — Same material as window tinting films.
- **Transparent Conductor on PET** — Indium Tin Oxide (ITO) — same as most touch screens.
- **Electronic Ink** — Nanoparticles suspended in a fluid which absorb light.
- **Energy Source** — Nanoparticles are controlled through DC low voltage applied to the ITO conductor material which is powered by a lithium-ion battery that is charged with a solar cell strip, no hard-wiring necessary.

Our plastic films are manufactured using industry standard roll-to-roll (R2R) processing equipment. We believe our R2R processing will have an inherently lower manufacturing cost compared to sheet-based processing methods used for other smart window technologies like electrochromic glass. There are three basic steps to making our film using R2R equipment.

- 1) **Deposition:** R2R TCO deposition on clear polyethylene terephthalate (PET) plastic film using vacuum sputtering of indium-tin oxide (ITO). The ITO on PET film can be provided by a number of suppliers. Millions of square feet of ITO on PET are currently provided for nearly all capacitance-based display touch screens.
- 2) **Embossing:** R2R embossing of UV-curable resin in a proprietary and patent protected 3-D pattern for ink pigment control and containment on one of the two plastic films. An example of the embossed pattern is shown in *Figure 2*. The R2R embossing process can be completed by various plastic film companies. Crown has the capability to accomplish the coating and embossing steps within its current facility in addition to working with manufacturing partners.

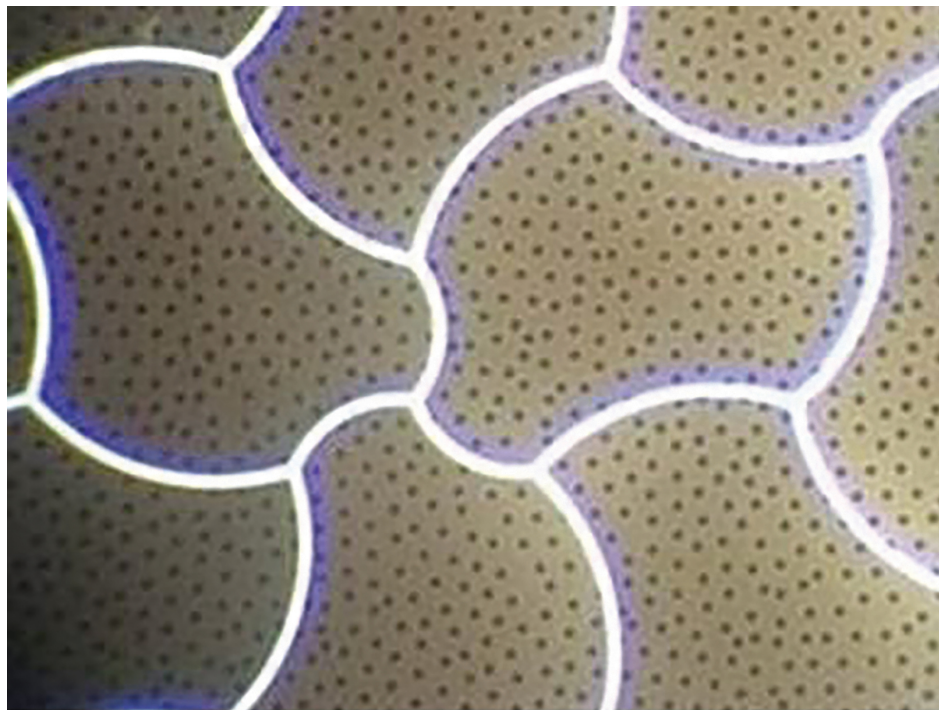


Figure 2. Microscopic Optical Image of Embossed Film

- 3) **Lamination:** The final R2R process laminates the two layers of PET together with the proprietary and patent protected pigment-containing fluid contained by the wall structure shown by the white areas in *Figure 2*. The wall area has adhesion to the upper layer of PET with ITO film thereby sealing the fluid between the two plastic layers. The fluid contains nanometer-sized pigment particles that are charged electrically and suspended in the fluid.

We believe that DynamicTint™ has the following distinct advantages over existing optical electronic film technologies:

- **Neutral Color** — Pigment is designed to be color neutral and will not affect the hue of what is viewed through the window in any clear, dark or tinted state.
- **Speed** — Transition time is typically a few seconds.
- **Affordability** — Roll-to-Roll film manufacturing using relatively inexpensive materials.
- **Low Energy Requirements** — Film is low voltage and can be powered with a small battery charged by a solar cell strip or wired to an existing electrical infrastructure including a LAN line.
- **Retro-Fit** — Film can be applied in a Smart Window Insert (“Inserts”), which can be placed within existing window frames, eliminating the needs for both window treatments or to replace single pane windows with dual pane windows.
- **Sustainable** — Reduces energy used to heat or cool a room via HVAC systems and can use renewable energy to transition the film.

Smart Window Insert powered by DynamicTint™

Our first product will be the Smart Window Insert powered by DynamicTint™ which is specifically designed for retrofitting in the domestic and international commercial real estate install base. Our DynamicTint™ can be laminated to other surfaces like heat-treated glass or acrylic and the laminated sheet can be assembled in Smart Window Inserts that can be placed into the interior side of the window frame providing the dynamic tinting capability as well as additional insulation and sound proofing to the existing windows (*Figure 3*).

Hemodynamic Results

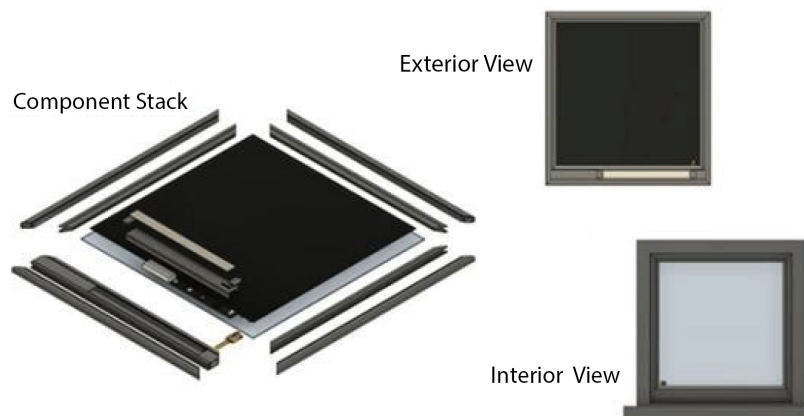


Figure 3. Window Insert with EK Film

The Insert is a custom-sized panel comprised of a rigid substrate (thin glass or acrylic) with a silicon compliant edge seal that allows for the insert to securely fit into the interior side of the window frame.

Some of the Insert’s features include:

- **Solar-powered** — eliminating the need to hardwire it into the building’s electrical system
- **Wirelessly enabled** — facilitating communication with all the other installed inserts and integration with the building’s management software system

- **Sensor equipped** — enabling the Insert to auto-sense the intensity of exterior light and interior ambient light
- **Software enabled** — can be managed via programmed macros, dynamically managed by the building, or user-controlled within an office
- **Data collection** — allowing optimization of the Inserts/curtain wall energy performance.
- **Lease vs Purchase** — Creative and flexible financing allows for customers to lease Inserts on a long-term basis and avoid large capital expenditures

We believe our Smart Window Inserts can be easily installed into commercial buildings, residential windows, skylights, and windows within garage doors. In commercial buildings, our Smart Window Inserts can be used to convert existing single pane windows into dual pane windows. We believe there is a significant opportunity to provide Smart Window Inserts to commercial building owners who are looking to eliminate window blinds, gain energy efficiency, and reduce carbon emissions.

Sustainability

Crown is aware that working towards building a sustainable future is a common goal shared by many. Companies such as Walmart (NYSE: WMT), Amazon (NASDAQ: AMZN) and Apple (NASDAQ: AAPL) are now publishing sustainability pledges, and we are seeing a trend of pledging to make their workplaces more environmentally friendly.

Crown's patented technology provides a solution that helps address many sustainability issues such as:

- **Reducing waste** — as opposed to replacing single pane window units with newly manufactured dual pane windows, Crown allows building owners to install our retrofit DynamicTint Insert into existing single pane window frames thereby creating a dual pane window;
- **Reducing energy** — Crown's Insert reduces HVAC energy consumption by reducing the need for constantly cooling and heating a room, reducing the customers carbon emissions. Initial field testing suggests HVAC energy savings of up to 26% could potentially result from the installation of Smart Window Inserts. According to FacilitiesNet (<https://www.facilitiesnet.com/windowsexteriorwalls/article/Smart-Window-Benefit-Energy-Savings-Reduced-Glare-17280>), the ability to control the amount of heat entering a building reduces the heat load of the building which in turn reduces your HVAC usage.;
- **Using renewable energy** — Crown's Smart Window Insert is low voltage and low wattage and can be powered by a solar strip that captures the sun's energy and is integrated into the Insert itself thereby eliminating the need to hardwire the Insert to the home or building's electrical system.

Another benefit of DynamicTint is being able to optimize daylight usage, thereby reducing the usage of lights. A study done by Project Drawdown (<https://www.drawdown.org/solutions/dynamic-glass>) projected that if 30-50% of commercial building spaces install dynamic glass, the potential climate-weighted energy efficiency from cooling is estimated at 9% and lighting at 9% — depending on local climate, building location and window orientation. This can result in 0.3-0.5 gigatons of emissions reductions from decreased energy use.

At Crown, we are committed to building a product that can be self-sufficient and does not require an additional power source or hard wiring into the electrical system of a residential home or commercial building. This ensures that as we reduce a building's energy consumption, we are not adding to it and are working towards being carbon neutral.

Intellectual Property

On January 31, 2016, we entered into an IP agreement with HP to acquire a research license to determine the feasibility of incorporating HP's electrokinetic display technology in our products. On February 4, 2021, Crown and HP entered into a fourth amendment to the agreement. Pursuant to such amendment, among other items, the parties agreed to amend the list of patent and patent applications, which includes two additional patents (the "HP Patents") that are assignable to us by HP upon the exercise of our option to acquire the HP Patents (the "Option"). In connection with our

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exercise of the Option, we paid HP an aggregate amount equal to One Million Five Hundred Fifty Thousand Dollars (\$1,550,000) on February 9, 2021. From the date of the exercise of the Option until January 1, 2030, we agreed to pay to HP a royalty fee based on the cumulative gross revenue received by us from the HP Patents as follows:

Time Window	Lifetime Cumulative Gross Revenue	Royalty Rate
Prior to December 31, 2029	\$ Less than \$70,000,000	0.00%
	\$ 70,000,000 – \$500,000,000	1.25%
	\$ 500,000,000 and beyond	1.00%
January 1, 2030 onward		0.00%

We entered into a Patent Assignment Agreement with International Business Machines Corporation (“IBM”) to acquire an ownership interest in assigned patents. As consideration for the patents, we paid \$264,000 (including legal fees of approximately \$38,000) on July 23, 2021.

In addition, we have current patent applications in the United States and other countries that if granted, would add three additional patents to its portfolio. Our United States patents expire at various dates from March 26, 2028 through March 10, 2036.

A 2022 appraisal of Crown’s intellectual property by one of the preeminent third-party IP-valuation firms indicated a total valuation of approximately \$94 million, consisting of \$35 million relating to patents (limited to the US office building market, supplying its Smart Window Insert) and \$59 million for trade secrets.

We believe that its EK technology is adequately protected by its patent position and by its proprietary technological know-how. However, the validity of our patents has never been contested in any litigation. We also possess know-how and relies on trade secrets and nondisclosure agreements to protect its technology. We require any employee, consultant, or licensee having access to its confidential information to execute an agreement whereby such person agrees to keep such information confidential.

Crown-Owned Patents

Country	Filing Date	Publication No.	Title
USA	28-Jan-19	11174328	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
China	28-Jan-19	CN111918894A	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
Europe	28-Jan-19	3752867	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
Japan	28-Jan-19	JP 2021514422A	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
Korea	28-Jan-19	KR 20200122333A	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
WO	28-Jan-19	WO 2019/160675	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
USA	16-Feb-18		REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
USA	13-Jan-20	2020-0225552	APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
WO	13-Jan-20	WO2020/150166	APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
USA	16-Jan-19		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
EPO	23-Jun-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
CN	8-Jul-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
Korea	5-Jul-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM

Country	Filing Date	Publication No.	Title
JP	15-Jul-21		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
USA	7-Jul-16	10377909	INKS INCLUDING SEGMENT COPOLYMER GRAFTED PIGMENTS VIA AZIDE CHEMISTRY
USA	22-Nov-10	8179590	ELECTRO-OPTICAL DISPLAY
USA	29-Jul-10	8054535	ELECTROPHORETIC DISPLAY DEVICE
USA	23-Aug-17	10852615*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
EPO	2-Dec-15	3256903*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS
EPO	2-Dec-15	3250962*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
USA	23-Aug-17	10656493*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS
USA	30-Nov-20	2021-0108463*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
WO	2-Dec-15	WO2016/089957*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS
WO	2-Dec-15	WO2016/089974*	TWO PARTICLE ELECTROPHORETIC LAMINATE FOR USE WITH SMART WINDOWS WITH REDUCED DIFFRACTION
USA	18-Dec-14	9567995	WINDOW OPACITY ATTENUATION USING MICROFLUIDIC CHANNELS
USA	18-Aug-15	9816501	WINDOW OPACITY ATTENUATION USING MICROFLUIDIC CHANNELS
USA	9-Mar-18	10926859	SMART WINDOW ACTIVATION TO PREVENT LASER DISTURBANCE
USA	10-May-18	10935818	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
USA	26-Oct-16	10106018	AUTOMATED WINDSHIELD GLARE ELIMINATION ASSISTANT
USA	2-Sep-16	10144275	ENVIRONMENTAL CONTROL IN VEHICLES
GB	2-May-19	2586760	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
CN	2-May-19	CN111936331A	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
DE	2-May-19	112019000749	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
JP	2-May-19		EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
PCT	2-May-19	WO2019/215544**	EVENT-BASED, AUTOMATED CONTROL OF VISUAL LIGHT TRANSMISSION THROUGH VEHICLE WINDOW
USA	11-Oct-21	11578150	REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
USA	24-Feb-22		WINDOW SYSTEM AND METHOD UTILIZING A WINDOW PANE ASSEMBLY AND LOCKING SYSTEM FOR EASY INSERTION OF A WINDOW PANE ASSEMBLY WITH ELECTRONICALLY CONTROLLABLE SCALABLE APERTURES FOR ATTENUATING OR OTHERWISE MODULATING LIGHT TRANSMISSION THROUGH SAID ASSEMBLY
USA	24-Feb-22		WINDOW SYSTEM AND METHOD UTILIZING A WINDOW PANE ASSEMBLY AND LOCKING SYSTEM FOR EASY INSERTION OF A WINDOW PANE ASSEMBLY WITH ELECTRONICALLY CONTROLLABLE SCALABLE APERTURES FOR ATTENUATING OR OTHERWISE MODULATING LIGHT TRANSMISSION THROUGH SAID ASSEMBLY

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Country	Filing Date	Publication No.	Title
USA	29-Mar-22		SELF-ALIGNING MASTER AREA MULTIPLICATION FOR CONTINUOUS EMBOSSED
USA	11-Sep-22		APPLICATIONS OF AN ELECTROKINETIC DEVICE FOR AN IMAGING SYSTEM
USA	22-Jul-14		INKS INCLUDING SEGMENT COPOLYMER GRAFTED PIGMENTS VIA AZIDE CHEMISTRY (recently assigned to Crown)
USA	10-Feb-23		REFRACTIVE INDEX MATCHED RESIN FOR ELECTROPHORETIC DISPLAYS AND OTHER APPLICATIONS
PCT	23-Feb-23		WINDOW SYSTEM AND METHOD UTILIZING A WINDOW PANE ASSEMBLY AND LOCKING SYSTEM FOR EASY INSERTION OF A WINDOW PANE ASSEMBLY WITH ELECTRONICALLY CONTROLLABLE SCALABLE APERTURES FOR ATTENUATING OR OTHERWISE MODULATING LIGHT TRANSMISSION THROUGH SAID ASSEMBLY

* Co-owned with University of Cincinnati

* Inactive

In-Licensed Patents

Patent No.	Country	Patent Date	Publication No.	Status	Title
8,183,757	USA	22-May-12		Issued	DISPLAY ELEMENT
8,184,357	USA	22-May-12		Issued	DISPLAY ELEMENT
8,331,014	USA	11-Dec-12		Issued	PIGMENT-BASED INKS
8,384,659	USA	26-Feb-13		Issued	DISPLAY ELEMENT INCLUDING ELECTRODES AND A FLUID WITH COLORANT PARTICLES
8,432,598	USA	30-Apr-13		Issued	TRANSPARENT CONDUCTOR STRUCTURE
8,896,906	USA	25-Nov-14		Issued	INKS INCLUDING BLOCK COPOLYMER GRAFTED PIGMENTS VIA AZIDE CHEMISTRY
8,018,642	USA	13-Sep-2011		Issued	ELECTRO-OPTICAL DISPLAY

Business Model

We intend to manufacture our patented EK Technology under the name DynamicTint™. We intend to generate revenue by selling our Smart Window Inserts powered by DynamicTint™ to our customers.

Crown's first product will be the Smart Window Insert powered by DynamicTint™ for retrofitting in commercial buildings. Crown's Smart Window Inserts will allow the building owner to quickly convert a single pane window unit to a dual pane window unit. Crown's Inserts will act as the "second pane" and will allow the building owner to enjoy all the benefits of a dual pane window without having to replace their existing single pane windows.

Crown's customers will be able to buy and own their Smart Window Inserts but also, at some stage, have the option to enter long-term leases of the Inserts with Crown. Additional applications we are exploring with potential customers of Crown's DynamicTint include:

- Smart Window Inserts for retrofitting of commercial buildings in markets outside the United States.
- Smart Window Inserts for retrofitting of multi-family buildings.
- Residential homes: residential windows, garage door windows, windows contained in and surrounding residential front doors as well as residential skylights.
- Automotive: sunroofs.

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As Crown's DynamicTint technology requires very little energy to effect that transition from clear to dark state, a rechargeable battery coupled with a built-in solar cell eliminates the need to hardwire the inserts to the building electrical system. Crown believes that the potential retrofit market for its Smart Window Inserts is significantly large. Each unit will have wireless communication capability for control of the film and communication with the building HVAC system.

Crown has also developed a working prototype of an insert for the residential skylight, which allows a homeowner to control the amount of light entering the room. Crown's DynamicTint Insert does not require the homeowner to replace their skylight as it conveniently fits into the existing frame. Crown's skylight insert will allow a homeowner (through a Bluetooth connection or RF controller) to adjust the level of desired tint easily and quickly, thereby controlling the amount of light and heat entering the room. The DynamicTint Skylight Insert will be powered by a rechargeable lithium battery and built-in solar cell thereby eliminating the need to wire the insert to the home's electrical system.

Partners and Customers

On March 25, 2022, Crown executed a Master Supply Agreement (the "BDN MSA") with Brandywine Operating Partnerships L.P. to install its Smart Window Inserts powered by DynamicTint™ in Brandywine office buildings. The BDN MSA provides the master terms and conditions under which purchase orders will be executed for Crown to supply units to retrofit windows at certain locations.

On December 27, 2021, Crown executed a Master Supply Agreement (the "HPP MSA") with Hudson Pacific Properties L.P. for the installation of Crown's energy saving Smart Window Inserts in several office properties across its West Coast portfolio. The HPP MSA provides the master terms and conditions under which purchase orders will be executed for Crown to supply units to retrofit windows at certain locations.

Prior to this, on September 27, 2021, Crown had entered into a Master Supply Agreement with MetroSpaces Inc., Crown's first commercial customer, install its Smart Window Inserts in MetroSpaces' 70,000 square -foot Houston, Texas office building.

In the future, Crown and its customers may enter into multiple specific transactions by executing purchase orders for additional buildings.

Additionally, discussions with multiple other building owners to buy Crown Smart Window Inserts are progressing as the regulatory and consumer pressure to reduce the level of energy consumption and carbon emissions continues to build.

Purchase Orders

On August 12, 2022, the Company entered into two Purchase Orders (PO's) with Hudson Pacific Properties, L.P. ("Hudson") for the purchase of the Company's Smart Window Inserts™ ("Inserts"). Hudson is a unique provider of end-to-end real estate solutions for tech and media tenants. The PO's have a value of \$85,450 and represent the first orders the Company has received prior to the launch of its Inserts. Delivery and installation are expected to begin in Q4 2023.

On August 12, 2022, as additional consideration for the PO's, the Company issued a warrant to Hudson to purchase 300,000 shares of the Company's Common Stock at \$0.75 per share. The warrant has a five year life and expires on August 12, 2027.

Manufacturing

Crown is developing its manufacturing capabilities to meet anticipated demand for the Smart Window Insert at its facilities located in Corvallis, Oregon, for film production, and Salem, Oregon, for Smart Window Insert manufacturing.

Crown plans to produce its EK film at its facilities in Corvallis using its existing roll to roll (the "R2R") embossing equipment. We intend to perform all other film manufacturing processes at our Corvallis facility upon receipt of additional manufacturing equipment currently ordered and awaiting delivery.

Crown's Smart Window Inserts will be produced at our Salem facility, where EK film will be laminated to glass, and then assembled into a frame. The inserts electronic components will also be integrated into the insert and the final assembled inserts will be packaged for shipment from Salem to our customers' buildings.

The completion of Crown's facilities in Corvallis and Salem marks our transition to being completely self-sufficient in manufacturing our products, eliminating any dependency on contract manufacturers or partners.

Commercial Office Building Market

Commercial buildings have gotten larger in the United States as their floorspace continues to grow faster than the number of commercial buildings, according to preliminary results from the U.S. Energy Information Administration's (EIA) 2018 *Commercial Buildings Energy Consumption Survey* (CBECS). CBECS estimates that 5.9 million U.S. commercial buildings contained a total of 97 billion square feet as of 2018. The number of commercial buildings increased by 6%, and commercial square footage increased by 11% since the CBECS was last conducted in 2012.

Smart Glass Industry Trends

We believe there are favorable converging global trends in the major near-term markets for "smart glass" products. Key factors driving the growth of the smart glass market are the growing demand for smart glass for energy savings for existing commercial and residential buildings. Added to this trend are government mandates and legislation for energy-efficient construction of both commercial and residential buildings. There is a growing opportunity for smart windows in the transportation industry including automobiles, commercial trucks, buses, and passenger rail cars.

In both public and private sectors across the world, there are substantial efforts targeted toward the promotion and use of energy efficient smart glass materials, including those used in automobiles, windows and other architectural glazings.

In September 2020, Markets and Markets issued *Smart Glass Market with COVID-19 Impact by Technology (Suspended Particle Display, Electrochromic, Liquid Crystal), Application (Architecture, Transportation, Consumer Electronics), and Geography — Global Forecast to 2025*. The smart glass market size is expected to grow from \$3.8 billion in 2020 to \$6.8 billion by 2025, at a CAGR of 12.1% during the forecast period. The growth of the smart glass industry is driven by factors, such as the growing adoption of smart glass in automotive application and, declining prices for electrochromic material. Other major driving factors for smart glass adoption include supportive government mandates and legislation on energy efficiency. Governing bodies of various countries are increasingly encouraging the use of these energy-efficient products.

Smart glass has inherent energy-saving and auto-dimming properties, which reduces its maintenance cost. As a result, the perceived benefits of these glass products are more than the incurred investments.

Crown believes that the smart glass industry is in the initial phase of growth and that DynamicTint™ may have commercial applicability in many products where variable light-control is desired.

Our Technology

DynamicTint™ combines many of the favorable properties of the other smart window technologies. It has fast-switching time and unlike electrochromic (EC) technology, modulation in light level is not area dependent and the film is neutral in color in all settings. Unlike Suspended Particles Devices (SPD) and Polymer Dispersed Liquid Crystal (PDLC) technology, EK film does not need high voltage alternating current to power the film. Because of the low power requirements, EK films can be powered with batteries or combined with small area solar cells, allowing retrofit to existing windows. Furthermore, in the future, EK film could be made with other colorants and it is possible with modification to the design to use two colorants in the same film, which has been demonstrated in the recent past under a research project at the University of Cincinnati. Below is a table outlining some of the typical properties of each technology.

Other Smart Glass Technologies

Variable light transmission technologies can be classified into two basic types: “active” technologies that can be controlled electrically by the user either automatically or manually, and “passive” technologies that can only react to ambient environmental conditions such as changes in lighting or temperature. Most of the technologies are “active”. One type that is passive is thermochromic technology where a rise in temperature will darken the film applied to glass.

We believe that our DynamicTint has certain performance advantages over other “smart glass” technologies and that pricing and product performance are the two main factors critical to the adoption of smart glass products. Because the non-EK smart glass technologies listed below do not have published, consistent pricing or cost data that can be relied upon, we cannot accurately report our price position relative to these other technologies. In terms of product performance, we believe that DynamicTint offers numerous advantages over other smart glass technologies, as discussed below.

Technology	Can Retrofit	Power Usage	Can Tint to Black	Solar or Battery Powered	Tint Transition Speed	Light Transmission
DynamicTint™ (Electrokinetic)	P	<0.01 W/M2	P	P	approx. 4 sec	3.0% – 70% or 0.4 % – 50%
Electrochromic (EC)	×	0.3 – 2 W/M2 (30X EK)	×	×	5 – 40 min	<1% – 58%
Suspended Polymers in Particles (SPD)⁽¹⁾	×	1.1 W/M2 at 100V/50hz (110X EK)	×	×	<3 sec	0.8% – 55%
Polymer Dispersed Liquid Crystal (PDLC)	×	5 – 20 W/M2 (500X EK)	×	×	1 – 3 sec	~80%

Ref. 1: SPD Film — LCF-1103DHA90 Showa Denko Material Co.

Electrochromic Glass

Electrochromic (EC) glass technology has been used as a light absorbing technology for rear view mirrors in automobiles for decades, and more recently for large-scale windows. However, the EC technology developed for windows is based on a different set of materials that are directly deposited on the heat-treated glass panels. All of the current EC companies use tungsten oxide as the main component involved in the color transition from clear to blue. Because of the nature of the chemical transition of tungsten oxide, EC film does not absorb as much of the blue light, so remaining light will have a strong blue hue both in the room and when looking through the window. The speed of the switching time from dark to light vice versa is directly related to the size of the window area and the electrode design which brings electrical current to the EC material to start the chemical transition. EC technology is basically a battery-like material that requires “charging and discharging”. The time to charge/discharge the EC material in a large window can take up to 40 minutes to change form the dark state to the clear state at nominal temperatures. Also, during switching of the EC film, there can be non-uniform areas which can vary in level of tint from center to edge. The larger the area of the window, the more non-uniform during the change of state. Longer switching time can minimize the non-uniform areas. The EC materials are typically vacuum deposited directly on “defect-free” glass. The typical investment required for a large window electrochromic factory can run into the hundreds of millions of dollars, due to the large-scale vacuum equipment required, low particulate cleanroom required, and the relatively slow speed of deposition for all the various layers. Halio, formerly Kinestral Technologies, is using a chemical liquid deposition technique to replace some of the vacuum deposition steps to lower the capital investment needed for manufacturing.

Suspended Particle Glass (SPD)

SPD is a film that has suspended long and narrow particles in an encapsulated liquid polymer film with layers of ITO on either side to allow generation of an alternating current electrical field to twist the particles from a random state to a near vertical state perpendicular to the ITO plane. In the vertical state light passes through the film and in the random state the light is absorbed by the particles. The color of the film is blue since the particles used in the film do not absorb blue light as well as other colors of sunlight. No other types of particles have been created for this type of device. The film responds quickly to the electrical field, however, requires constant high AC voltage to hold the clear state. The film is manufactured on plastic and uses roll-to-roll (R2R) equipment processing. Also, because the particles are

aligned when in the clear state, the film has a limited viewing angle much like older liquidcrystal displays. When viewed at a side angle, the film will appear darker. The current market for SPD has been mainly automobile sunroofs where the viewing angle of the passengers is relatively fixed at nearly perpendicular angle to the SPD film.

Polymer-Dispersed Liquid Crystal (PDLC) Film

PDLC requires an AC electric field like the SPD film described above to achieve a clear state. However, the liquid-crystal based film can only scatter light in the power-off state, therefore, most of the incoming light is transmitted through the film (~80%). Typically, the PDLC film is used for interior windows or doors to create privacy. PDLC has similar manufacturing methods using R2R equipment and plastic film with ITO conductor to the SPD film. The film is available from many Far East manufacturing companies with some able to make ~150 cm width film. The quality of the film can vary based on the manufacturing company. The film was invented at Kent State University in the 1980's and the patents have expired.

Competition

Several smart glass competitors have an operating history, including:

- SAGE Electrochromic, Inc., a wholly owned subsidiary of Saint-Gobain, which develops and manufactures electrochromic glass;
- View Glass [NASDAQ: VIEW] and Halio, formerly Kinestral Technologies, manufacture electrochromic glass at their purpose-built manufacturing facilities and both are headquartered in California; and
- Research Frontiers, Inc. [NASDAQ: REFR] licenses an electronically controlled tinted film, utilizing SPD technology, to various companies.

Crown Electrokinetics expects that other competitors will emerge in the future.

Research and Development

Crown has been using a 6" width R2R equipment capable of handling the deposition, embossing and lamination steps of the manufacturing process for its research and development. Crown will utilize the 12" width film for the first-generation Smart Window Insert. Larger scale manufacturing is planned at a minimum of 36" width film to address markets including appropriately sized commercial building window inserts, larger format skylights inserts, and many automobile sunroofs. Thereafter, Crown will develop capability to manufacture DynamicTint film of at least 72" width capability. This will allow Crown to address the vast majority of window sizes for most applications.

As a result of our research and development efforts, we believe that our EK technology is now, or with additional development will become, usable in a number of commercial products. Such products may include one or more of the following fields: "smart" windows, doors, skylights and partitions; self-dimmable automotive sunroofs, windows, sun visors, and mirrors.

We have devoted most of our financial resources to research and development activities with the goal of producing commercially viable EK products and has developed working samples of our EK technology.

Crown's main goals in its research and development include:

- reducing the voltage required to operate DynamicTint™,
- obtaining data and developing improved materials regarding environmental stability and longevity, and
- quantifying the degree of energy savings expected by users of our technology.

Crown Fiber Optics

On January 3, 2023, we acquired substantially all of the assets (the "Asset Acquisition") of Amerigen 7 LLC ("Amerigen"), which was engaged in the business of construction of 5G fiber optics infrastructure, for cash consideration of approximately \$0.65 million. The Asset Acquisition included approximately 12 employees, customer contracts, and certain operating liabilities. On December 20, 2022, we incorporated our wholly-owned subsidiary Crown Fiber Optics Corp. ("Crown Fiber Optics" or "we") in Delaware, to own and operate the business acquired from Amerigen.

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Crown is a new entrant in providing contracting services to the fiber optics and telecommunications infrastructure industry throughout the United States. Since our entrance into the construction of fiber optic networks, we have expanded our scope and service offerings organically and through one acquisition. Today, Crown is focused on providing constructions services to the fiber optic industry. We are focused on adding management depth to expand our industry knowledge, to develop strong customer relationships, and to hire and retain a skilled workforce.

Crown's fiber optic operating division supplies telecommunications providers with a comprehensive portfolio of specialty services, including program management; planning; engineering and design; aerial, and underground fiber construction.

Construction, Maintenance, and Installation Services. We provide a range of construction, maintenance, and installation services, including the placement and splicing of fiber, copper, and coaxial cables. We excavate trenches to place these cables; place related structures, such as poles, anchors, conduits, manholes, cabinets, and closures; place drop lines from main distribution lines to a consumer's home or business; and maintain and remove these facilities. We provide these services for both telephone companies, internet service providers and cable multiple system operators in connection with the deployment, expansion, or maintenance of new and existing networks. We can also provide tower construction, lines and antenna installation, foundation and equipment pad construction, small cell site placement for wireless carriers, and equipment installation and material fabrication and site testing services. In addition, we provide underground facility locating services for telecommunications providers. Our underground facility locating services include locating telephone, cable television, power, water, sewer, and gas lines.

Fiber Optics Business Strategy

Capitalize on Long-Term Growth Drivers. We are positioned to benefit from the increased demand for network telecommunications bandwidth that is necessary to ensure reliable video, voice, and data services. Developments in consumer and business applications within the telecommunications industry, including advanced digital and video service offerings, continue to increase demand for greater wireline and wireless network capacity and reliability. Telecommunications network operators are increasingly deploying fiber optic cable technology deeper into their networks and closer to consumers and businesses in order to respond to consumer demand, competitive realities, and public policy support. Additionally, wireless carriers are upgrading their networks and contemplating next generation mobile solutions in response to the significant demand for wireless broadband, driven by the proliferation of smart phones, mobile data devices and other advances in technology. Increasing wireless data traffic and emerging wireless technologies are United States. Furthermore, significant consolidation and merger activity among telecommunications providers could also provide increased demand for our services as networks are integrated.

Selectively Increase Market Share. We believe our reputation for providing high quality services and the ability to provide those services nationally creates opportunities to expand market share. Our operating structure and multiple points of contact within customer organizations positions us favorably to win new opportunities and maintain strong relationships with our customers.

We recently purchased five micro trenchers to gain a strategic advantage over other companies competing in our market. Micro trenching is a technique to place fiber optic cables underground and is gaining acceptance across multiple markets. Micro trenchers are difficult to obtain as the demand for the equipment is significant. We have a commitment from our equipment vendor for an additional 15 micro trenchers. We believe this advantage will allow Crown to gain market share and market advantage over its competitors.

Pursue Selective Acquisitions. We may pursue acquisitions that are operationally and financially beneficial for the Company as they provide incremental revenue, geographic diversification, and complement existing operations. We generally target companies for acquisition that have defensible leadership positions in their market niches, the opportunity to generate profitability that meets or exceeds industry averages, proven operating histories, sound management and certain clearly identifiable cost synergies.

Fiber Optics Customer Relationships

We have recently established relationships with many leading telecommunications providers, including telephone companies, cable multiple system operators, wireless carriers, and telecommunication equipment and infrastructure providers. Our customer base is primarily concentrated in the Great Lakes region and the West Coast. We believe that a substantial portion of our total contract revenues and operating income will continue to be generated from a concentrated group of customers and that the identity and proportion of our contract revenues arising from our work for our top customers will fluctuate.

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We perform a significant amount of our services under master service agreements and other contracts that contain customer-specified service requirements. These agreements include discrete pricing for individual tasks. We generally possess multiple agreements with each of our significant customers. To the extent that such agreements specify exclusivity, there are often exceptions, including the ability of the customer to issue work orders valued above a specified dollar amount to other service providers, the performance of work with the customer's own employees, and the use of other service providers when jointly placing facilities with another utility. In most cases, a customer may terminate an agreement for convenience. Historically, multi-year master service agreements have been awarded primarily through a competitive bidding process; however, occasionally we are able to negotiate extensions to these agreements. We provide the remainder of our services pursuant to contracts for specific projects. These contracts may be long-term (with terms greater than one year) or short-term (with terms less than one year) and often include customary retainage provisions under which the customer may withhold 5% to 10% of the invoiced amounts pending project completion and closeout.

Fiber Optics Cyclicalality and Seasonality

The cyclical nature of the industry we serve affects demand for our services. The capital expenditure and maintenance budgets of our customers, and the related timing of approvals and seasonal spending patterns, influence our contract revenues and results of operations. Factors affecting our customers and their capital expenditure budgets include, but are not limited to, overall economic conditions, including the cost of capital, the introduction of new technologies, our customers' debt levels and capital structures, our customers' financial performance, and our customers' positioning and strategic plans. Other factors that may affect our customers and their capital expenditure budgets include new regulations or regulatory actions impacting our customers' businesses, merger or acquisition activity involving our customers, and the physical maintenance needs of our customers' infrastructure.

Our operations exhibit seasonality and may be impacted by adverse weather changes as we perform a significant portion of our work outdoors. Consequently, adverse weather, which is more likely to occur with greater frequency, severity, and duration during the winter, as well as reduced daylight hours, impact our operations during the fiscal quarters ending in December and March. Additionally, extreme weather conditions such as major or extended winter storms, droughts and tornados, and natural disasters, such as floods, hurricanes, tropical storms, whether as a result of climate change or otherwise, could also impact the demand for our services, or impact our ability to perform our services.

Competition

The specialty contracting services industry in which we operate is highly fragmented and includes a large number of participants. We compete with several large multinational corporations and numerous regional and privately owned companies. In addition, a portion of our customers directly perform many of the same services that we provide. Relatively few barriers to entry exist in the markets in which we operate. As a result, any organization that has adequate financial resources, access to technical expertise, and the necessary equipment may become a competitor and the degree to which an existing competitor participates in the markets that we operate may increase rapidly. The principal competitive factors for our services include geographic presence, quality of service, worker and general public safety, price, breadth of service offerings, and industry reputation. We believe that we compare favorably to our competitors when evaluated against these factors.

Fiber Optics Organization

We believe that our employees are our most important resources and are critical to our continued success. We focus significant attention on attracting and retaining talented and experienced individuals to manage and support our operations. We offer our employees a broad range of company-paid benefits, and we believe our compensation package and benefits are competitive with others in our industry. We are committed to hiring, developing and supporting a diverse and inclusive workplace.

Each employee, officer and director of the Company must adhere to the highest standards of business ethics when dealing with each other and with customers, suppliers and all other persons as outlined in our "Code of Ethics". The Code of Ethics requires all employees to conduct all business dealings with honesty and candor and with respect for the law and the highest standard of ethical behavior. Personal integrity, good faith and fair dealing, the respectful treatment of others, and all other attributes of good behavior are essential for our employees, but special responsibility

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to uphold these values rests on our officers, managers and supervisors as they establish the climate for all other employees. Officers, managers and supervisors are required to create a work environment that encourages employees to discuss concerns without fear of retaliation. Should potential violations of the Code of Conduct or the law occur, employees are encouraged to voice concerns promptly and are reminded that retaliation against anyone who reports a potential violation in good faith will not be tolerated. All employees are required to complete the training on the Code of Ethics, and we report material matters related to the Code of Ethics to the Audit Committee of our Board.

The success of our business is fundamentally connected to the safety and wellbeing of our people. We are committed to instilling safe work habits through proper training and supervision of our employees and expect adherence to safety practices that ensure a safe work environment. Our safety programs require employees to participate both in safety training required by law and training that is specifically relevant to the work they perform. Safety directors review incidents, examine trends, and implement changes in procedures to address safety issues.

Our Board of Directors, through our Compensation Committee and our Corporate Governance Committee, provides oversight on employee matters. The Compensation Committee receives updates on activities, strategies and initiatives related to the compensation and retention of our employees, and our Corporate Governance Committee oversees environmental, social and human capital matters, as well as the development and succession planning of senior management.

Fiber Optics Subcontractors and Materials

We may contract with subcontractors to perform a significant amount of our work and to manage fluctuations in work volumes and to reduce the amount we expend on fixed assets and working capital. These subcontractors are typically small, privately owned companies that provide their own employees, vehicles, tools and insurance coverage. No individual subcontractor is financially significant to the Company.

For a majority of the contract services we perform, we are provided the majority of the required materials by our customers. Because our customers retain the financial and performance risk associated with materials they provide, we do not include the costs associated with those materials in our contract revenues or costs of earned revenues. Under contracts that require us to supply part or all of the required materials, we typically do not depend upon any one source for those materials.

Risk Management and Insurance

Claims arising in our business generally include workers' compensation claims, various general liability and damage claims, and claims related to motor vehicle collisions, including personal injury and property damage. For claims within our insurance program, we retain the risk of loss, up to certain limits, for matters related to automobile liability, general liability (including damages associated with underground facility locating services), workers' compensation, and employee group health. Additionally, within our aggregate coverage limits and above our base layer of third-party insurance coverage, we have retained the risk of loss at certain levels of exposure. We carefully monitor claims and actively participate with our insurers and our third-party claims administrator in determining claims estimates and adjustments. We accrue the estimated costs of claims as liabilities and include estimates for claims incurred but not reported. Due to fluctuations in our loss experience from year to year, insurance accruals have varied and can affect our operating margins. Our business could be materially and adversely affected if we experience an increase of insurance claims at certain amounts, or in excess of our coverage limits.

Regulation

We are subject to various federal, state, and local government regulations, including laws and regulations relating to environmental protection, work-place safety, and other business requirements.

Environmental. A significant portion of the work we perform is associated with the underground networks of our customers and we often operate in close proximity to pipelines or underground storage tanks that may contain hazardous substances. We could be subject to potential material liabilities in the event we fail to comply with environmental laws or regulations or if we cause or are responsible for the release of hazardous substances or cause other environmental damages. In addition, failure to comply with environmental laws and regulations could result in significant costs including remediation costs, fines, third-party claims for property damage, loss of use, or personal injury, and, in extreme cases, criminal sanctions.

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Workplace Safety. We are subject to the requirements of the federal Occupational Safety and Health Act (“OSHA”) and comparable state statutes that regulate the protection of the health and safety of workers. Our failure to comply with OSHA or other workplace safety requirements could result in significant liabilities, fines, penalties, or other enforcement actions and affect our ability to perform the services that we have been contracted to provide to our customers.

Business. We are subject to a number of state and federal laws and regulations, including those related to utility oversight contractor licensing and the operation of our fleet. If we are not in compliance with these laws and regulations, we may be unable to perform services for our customers and may also be subject to fines, penalties, and the suspension or revocation of our licenses.

Crown Electrokinetics Employees and Human Capital

We have 33 employees; 28 of the employees are construction, technical and operational personnel, and the rest perform business development, finance, marketing, investor relations, and administrative functions. Crown's employees have extensive industrial experience in leading technology, ink-based manufacturing and 5G construction companies. We believe that our success is dependent upon, among other things, the services of our senior management, the loss of which could have a material adverse effect upon our prospects. None of our employees are represented by a labor union or covered by a collective bargaining agreement.

As Crown continues to grow, we will add additional construction, manufacturing engineering, marketing, and administrative personnel.

Corporate Information

Our primary business location is the R&D and Manufacturing facility located at 1110 NE Circle Blvd., Corvallis, OR 97330. We also have an office located at 11601 Wilshire Blvd., Suite 2240, Los Angeles, CA 90025. Our telephone number is +1 (800) 674-3612 and our Internet website address is www.crownek.com. We were incorporated in the State of Delaware on April 20, 2015.

Properties

On March 8, 2016, the Company entered into a lease agreement with Oregon State University, to lease 1,700 square feet of office and laboratory space located at HP Campus Building 11, 1110 NE Circle Blvd, Corvallis, Oregon, for approximately \$400 monthly. On July 1, 2016, the Company entered into the first amendment to the lease agreement which increased the monthly lease expense to approximately \$1,200. On October 1, 2017, the Company entered into a sublease agreement, which provides for additional office space and the monthly lease payment increased to approximately \$1,800. The lease expired on June 30, 2018 and the Company extended the lease through June 30, 2019. The monthly lease payment increased to approximately \$4,500 for the months ended June 30, 2018 through November 30, 2018, and increased to approximately \$7,550 for the months ended December 31, 2018 through June 30, 2019. On July 1, 2019, the Company entered into the fourth amendment to its lease with Oregon State University, which extends the lease expiration date to June 30, 2022. On July 1, 2020, the Company entered into the fifth amendment to its lease with Oregon State University which adjusts the Operating Expense Reimbursement payment due dates from monthly to quarterly, with the payments due in advance on the first of July, October, January and April. Effective July 1, 2020, the quarterly operating expense will be \$23,097. On September 1, 2021, the Company entered into the seventh amendment which expanded the lease to include approximately 703 square feet of lab space, 576 square feet of cubicle space, 1096 square feet of Highbay lab space, and 376 square feet of High bay storage space in a building commonly known as Building 11. Effective September 1, 2021, the quarterly operating expense will be \$31,647 covering all utility and facility tooling costs. On January 24, 2022, the Company entered into the eighth amendment which expands the lease to include approximately 703 square feet of lab space, 768 square feet of cubicle space, 2,088 square feet of Highbay lab space, and 376 square feet of High bay storage space in a building commonly known as Building 11. Effective January 24, 2022, the quarterly operating expense will be \$44,252 covering all utility and facility tooling costs. The sublease expires June 30, 2025. On January 20, 2023, the Company entered into the ninth amendment to its lease with Oregon State University which reduces the amount of cubicle space from 768 square feet to 288 square feet. Effective January 20, 2023 the quarterly operating expense will be \$41,323 covering all utility and facility tooling costs.

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On March 4, 2021, the Company entered into a lease agreement with Hudson 11601 Wilshire, LLC, to lease 3,500 square feet of office space located in Los Angeles, California. The lease term is 39 months and expires on June 30, 2024. The monthly lease expense is as follows:

• Months 1 – 12	— \$18,375
• Months 13 – 24	— \$19,018
• Months 25 – 36	— \$19,683
• Months 37 – 39	— \$20,372

The Company paid a security deposit totaling \$20,373 at lease inception date.

On May 4, 2021, we entered into a lease agreement with HP Inc. to lease office and lab space located in Corvallis, Oregon. The lease term is 5 years and the lease commencement date is April 1, 2021. The monthly lease expense is \$7,388 and increases by 3% on each anniversary of the lease commencement date. We will pay a security deposit totaling \$8,315. We have the option to extend the lease for an additional 5 years. On January 26, 2022, the Company entered into the first amendment to its lease with HP Inc., which amends the lease commencement date to January 26, 2022 and the lease expiration date to January 31, 2027.

On October 5, 2021, the Company entered into a lease agreement with Pacific N.W. Properties, LLC to lease 26,963 square feet of warehouse, manufacturing, production and office space located in Salem Oregon. The commencement date of the lease is October 1, 2021, the lease term is 62 months and expires on November 30, 2026.

On December 9, 2021, the Company entered into the first amendment to its lease agreement with Pacific N.W. Properties, LLC. The lease amendment revises the lease commencement date to December 9, 2021 and the lease expiration date to February 28, 2027. The revised monthly lease expense is as follows:

• Months 1 – 2	— \$15,357
• Months 3 – 12	— \$21,500
• Months 13 – 24	— \$22,145
• Months 25 – 36	— \$22,809
• Months 37 – 48	— \$23,494
• Months 49 – 60	— \$24,198
• Months 61 – 62	— \$24,924

We believe that our facilities are adequate to meet our needs for the immediate future and that, should it be needed, we will be able to secure additional space to accommodate the expansion of our operations.

Legal Proceedings

From time to time, we are also involved in various other claims and legal actions that arise in the ordinary course of business. Although the results of litigation and claims cannot be predicted with certainty, we do not believe that the ultimate resolution of these actions will have a material adverse effect on our financial position, results of operations, liquidity or capital resources.

Future litigation may be necessary to defend ourselves and our partners by determining the scope, enforceability and validity of third party proprietary rights or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

EXECUTIVE COMPENSATION

Summary Compensation Table

The following table sets forth information regarding compensation earned during the year ended December 31, 2022, the nine month period ended December 31, 2021 and the fiscal year ended March 31, 2021 by our principal executive officers and our other most highly compensated executive officers as of the end of December 31, 2022 (“Named Executive Officers”).

Name and Principal Position	Fiscal Year Ended	Annual Compensation			Long-Term Compensation Awards	
		Salary	Bonus	Other Compensation	Options	Restricted Stock Awards
Douglas Croxall	December 31, 2022	\$ 675,000	\$ 525,000	\$ —	\$ 37,974	\$ 51,000
Chief Executive Officer	December 31, 2021*	\$ 506,250	\$ 400,000	\$ —	\$ 30,799	\$ —
	March 31, 2021	\$ 168,750	\$ —	\$ 870,000	\$ 2,930,925	\$ 8,925,715
Timothy Koch	December 31, 2022	\$ 250,000	\$ —	\$ —	\$ 15,822	\$ 21,250
Chief Technology Officer	December 31, 2021*	\$ 175,833	\$ —	\$ —	\$ —	\$ —
	March 31, 2021	\$ 180,000	\$ —	\$ —	\$ 887,534	\$ —
Joel Krutz	December 31, 2022	\$ 376,666	\$ 250,000	\$ —	\$ 25,316	\$ 34,000
Chief Financial Officer	December 31, 2021*	\$ 195,000	\$ —	\$ 128,389	\$ —	\$ 1,600,000
	March 31, 2021	\$ —	\$ —	\$ —	\$ —	\$ —
Edward Kovalik ⁽¹⁾	December 31, 2022	\$ 184,229	\$ —	\$ —	\$ —	\$ —
Former President and	December 31, 2021*	\$ 412,500	\$ —	\$ —	\$ —	\$ 2,196,000
Chief Operating Officer	March 31, 2021	\$ —	\$ —	\$ —	\$ —	\$ —
Kaijiro Sato ⁽²⁾	December 31, 2022	\$ —	\$ —	\$ 137,499	\$ —	\$ —
Former Co-President and	December 31, 2021*	\$ —	\$ —	\$ 504,164	\$ —	\$ 1,896,000
Chief Marketing Officer	March 31, 2021	\$ —	\$ —	\$ —	\$ —	\$ —

* Nine months ended December 31, 2021

(1) Mr. Kovalik resigned from the Company to pursue other opportunities on October 14, 2022.

(2) Mr. Sato resigned from the Company to pursue other opportunities on April 29, 2022.

Restricted Stock

A total of 437,500 restricted stock units have been issued to employees, and 100,000 restricted stock units have been issued to advisors, and 138,850 restricted stock units have been granted to members of our board of directors

During the nine months ended December 31, 2021, the Company granted 800,000 restricted stock units with a fair value of approximately \$4.1 million, in exchange for 800,000 restricted stock awards issued to an officer of the Company and a consultant. The fair value and vesting terms of the restricted stock units are identical to the terms of the restricted stock awards, and therefore, no incremental stock-based compensation has been recognized during the nine months ended December 31, 2021.

Stock Option Grants

A total of 832,500 stock options have been granted to employees, 0 stock options have been granted to advisors, and 0 stock options have been granted to members of our board of directors.

Narrative Disclosures Regarding Compensation; Employment Agreements

We have entered into employment agreements with two of our Named Executive Officers. The terms and conditions of each of the foregoing arrangements are summarized below.

Doug Croxall Agreement

On June 16, 2021, we entered into an employment agreement with Doug Croxall, our Chief Executive Officer. Pursuant to the agreement, Mr. Croxall will serve as our Chief Executive Officer for a period of two years, which will automatically extend for successive 12 month periods unless terminated by either us or Mr. Croxall. Mr. Croxall will

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receive an annual base salary of \$675,000. Mr. Croxall will also be entitled to an annual discretionary bonus based upon certain performance targets established by our Board of Directors, as well as annual awards under our long-term incentive plan, upon the terms and conditions established by our Board of Directors. Additionally, upon successfully securing funding of \$15 million or more from the public offering of our Common Stock, Mr. Croxall is entitled to receive 1,061,905 restricted shares of our Common Stock and a one-time bonus of \$400,000. The award of restricted stock as set forth above is subject to Mr. Croxall's execution of a restricted stock agreement called for by the 2022 Employee Incentive Plan with one-time vesting of the shares to be 12 months from the effective date thereof, subject to the terms of the 2022 Employee Incentive Plan. On October 31, 2022, our Board of Directors approved an increase of Mr. Croxall's annual base salary to \$700,000 effective January 1, 2023.

Joel Krutz Agreement

On June 21, 2021, we entered into an employment agreement with Joel Krutz to serve as our Chief Financial Officer. Pursuant to the agreement, Mr. Krutz will serve as our Chief Financial Officer for a period of two years, which will automatically extend for successive 12 month periods unless terminated by either us or Mr. Krutz. Mr. Krutz will receive an annual base salary of \$360,000. Mr. Krutz will also be entitled to an annual discretionary bonus based upon certain performance targets established by our Board of Directors, as well as annual awards under our 2022 Employee Incentive Plan, upon the terms and conditions established by our Board of Directors. We have also agreed to award Mr. Krutz 400,000 restricted shares of our Common Stock and a relocation payment of \$60,000. The award of restricted stock is subject to Mr. Krutz's execution of a restricted stock agreement called for by the 2020 Long-Term Incentive Plan and will vest in equal monthly installments over a period of 36 months. On October 31, 2022, we entered into an amended employment agreement, pursuant to which Mr. Krutz will continue his service as our Chief Financial Officer, and also became our Chief Operating Officer, and pursuant to which Mr. Krutz will receive an annual salary of \$560,000 effective January 1, 2023. The other terms of Mr. Krutz's employment agreement remain unchanged.

Outstanding Equity Awards at Fiscal Year End

2022 Outstanding Equity Awards at Fiscal Year-end Table

The following table sets forth information regarding the outstanding equity awards held by our Named Executive Officers as of December 31, 2022:

Name	Option Awards				Stock Awards				
	Number of Securities Underlying Unexercised Options (#)	Number of Securities Underlying Unexercised Options (#)	Equity Incentive Plan Awards:	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)	Equity Incentive Plan Awards:	Equity Incentive Plan Awards:
			Number of Securities Underlying Unexercised Options (#)					Number of Unearned Shares, Units or Rights That Have Not Vested (#)	Market or Payout Value of Unearned Shares, Units or Rights That Have Not Vested (\$)
Doug Croxall	166,667	—	166,667	0.15	2.28.2023	116,666	\$ 39,666	—	—
Doug Croxall	250,000	—	250,000	1.20	1.17.2024	—	—	—	—
Doug Croxall	1,083,333	—	1,083,333	2.25	4.13.2025	—	—	—	—
Doug Croxall	1,421,967	—	1,421,967	3.60	12.30.2025	—	—	—	—
Doug Croxall	430,556	—	430,556	1.20	12.30.2025	—	—	—	—
Doug Croxall	13,149	—	13,149	3.60	4/1/2026				
Doug Croxall	116,666	—	116,666	0.34	9/23/2032				
Tim Koch	244,000	—	244,000	0.15	2.28.2028	—	—	—	—
Tim Koch	50,000	—	50,000	1.20	1.17.2029	—	—	—	—
Tim Koch	320,000	—	320,000	2.25	4.13.2030	—	—	—	—
Tim Koch	597,015	—	597,015	3.60	12.30.2030	—	—	—	—
Joel Krutz						188,889	\$ 470,889		

Option Re-pricings

We have not engaged in any option re-pricings or other modifications to any of our outstanding equity awards to our Named Executive Officers during fiscal year 2022.

Compensation of Directors

2022 Director Compensation Table

The following Director Compensation Table sets forth information concerning compensation for services rendered by our independent directors for fiscal year 2022.

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)	Option Awards (\$) ⁽¹⁾	All Other Compensation (\$)	Total (\$)
Dr. DJ Nag ⁽²⁾	\$ 52,000	\$ 33,692	\$ —	\$ —	\$ 85,692
John Marchese ⁽³⁾		54,165		—	54,165
Christopher Smith ⁽⁴⁾		54,165		—	54,165
Gary C. Hanna ⁽⁵⁾	27,978	32,021		—	59,999
Gizman I. Abbas ⁽⁶⁾	27,978	32,021		—	59,999
Daniel Marcus	25,565				25,565
Total:	\$ 133,522	\$ 206,623	\$ —	\$ —	\$ 339,586

- (1) Represents the aggregate grant date fair value under FASB ASC Topic 718 of options to purchase shares of our Common Stock granted during fiscal year 2022.
- (2) Dr. Nag was appointed to serve as a member of the Board of Directors in July 2020. Dr. Nag held options to purchase 33,333 shares of our Common Stock.
- (3) Mr. Marchese was appointed to serve as a member of the Board of Directors in December 2020. Mr. Marchese held options to purchase 33,333 shares of our Common Stock. Mr. Marchese chose not to stand for re-election as a member of our Board of Directors in 2022.
- (4) Mr. Smith was appointed to serve as a member of the Board of Directors in December 2020. Mr. Smith held options to purchase 33,333 shares of our Common Stock. Mr. Smith chose not to stand for re-election as a member of our Board of Directors in 2022.
- (5) Mr. Hanna was appointed to serve as a member of the Board of Directors in March 2021. Mr. Hanna held options to purchase 33,333 shares of our Common Stock. Mr. Hanna resigned as a member of our Board of Directors on October 14, 2022.
- (6) Mr. Abbas was appointed to serve as a member of our Board of Directors in March 2021. Mr. Abbas held options to purchase 33,333 shares of our Common Stock. Mr. Abbas resigned as a member of our Board of Directors on October 14, 2022.

Mr. Croxall has not been included in the Director Compensation Table because he is a Named Executive Officer of our company, and all compensation paid to him during our 2022 fiscal year is reflected in the Summary Compensation Table above.

Director Compensation Program

Directors who are employees of our company or of any of our subsidiaries receive no additional compensation for serving on our Board of Directors or any of its committees. All directors who are not employees of our company or of any of our subsidiaries are compensated at the rate of \$12,000 per quarter. The Lead Independent Director receives a quarterly premium of \$1,500 and Committee Chairs \$1,000. All directors who are not employees are eligible for annual equity compensation of \$75,000 payable in shares of Common Stock.

Equity Compensation Plan Information

On October 31, 2022, we adopted our 2022 Long-Term Incentive Plan (the “2022 Plan”). Under the 2022 Plan, the maximum number of shares of our Common Stock as to which awards may be granted under the 2022 Plan may not exceed four million two hundred thousand (4,200,000) shares (the “Initial Share Limit”), which amount is subject to proportional adjustment as determined by our Board of Directors to reflect certain stock changes, such as stock dividends and stock splits.

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Notwithstanding the foregoing, (a) the total number of shares of Common Stock that may be delivered pursuant to awards under the 2022 Plan shall automatically increase on the first trading day of each calendar year, beginning with the 2023 calendar year, by such number of shares of Common Stock as are necessary so that the total number of shares reserved for issuance under the 2022 Plan shall be equal to 19.9% of the total number of outstanding shares of Common Stock, determined on a fully diluted basis as of the applicable trading date (the “Stipulated Percentage”); (b) our Board of Directors may act prior to January 1st of a given calendar year to provide that (i) there will be no such automatic annual increase in the number of shares reserved for issuance under the 2022 Plan or (ii) the increase in the number of shares for such calendar year will be a lesser number of shares than necessary to maintain the Stipulated Percentage of shares reserved for issuance under the 2022 Plan.

On December 16, 2020, we adopted our 2020 Long-Term Incentive Plan (the “2020 Plan”). Under the 2020 Plan, there are 5,333,333 shares of our Common Stock available for issuance and the 2020 Plan has a term of 10 years. The available shares in the 2020 Plan will automatically increase on the first trading day in January of each calendar year during the term of the 2022 Plan, commencing with January 2021, by an amount equal to the lesser of (i) five percent (5%) of the total number of shares of Common Stock issued and outstanding on December 31 of the immediately preceding calendar year, (ii) 1,000,000 shares of Common Stock or (iii) such number of shares of Common Stock as may be established by our Board of Directors.

We grant equity-based compensation under our 2020 Plan and our 2016 Equity Incentive Plan (the “Plan”). The 2020 Plan and 2016 Plan allows us to grant incentive and nonqualified stock options, and shares of restricted stock to our employees, directors and consultants. On June 14, 2019, the Board of Directors approved increasing the number of shares allocated to our 2016 Plan from 5,500,000 to 7,333,333.

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options	(b) Weighted- Average Exercise Price of Outstanding Options	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	17,973,158	N/A	5,077,280
Equity compensation plans not approved by security holders	—	N/A	—
Total	17,973,158	N/A	5,077,280

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Approval for Related Party Transactions

It is our practice and policy to comply with all applicable laws, rules and regulations regarding related person transactions. Our Code of Ethics and Business Conduct requires that all employees, including officers and directors, disclose to the Chief Executive Officer the nature of any company business that is conducted with any related party of such employee, officer or director (including any immediate family member of such employee, officer or director, and any entity owned or controlled by such persons). If the transaction involves an officer or director of our company, the Chief Executive Officer must bring the transaction to the attention of the Audit Committee, which must review and approve the transaction in advance. In considering such transactions, the Audit Committee takes into account the relevant available facts and circumstances.

Related Party Transactions

We have not engaged in any related party transactions in the last three years.

LEGAL MATTERS

The validity of the securities offered in this prospectus will be passed upon for us by Pryor Cashman LLP, New York, New York. Ellenoff Grossman & Schole LLP is acting as counsel for the placement agent in connection with certain legal matters related to this offering.

EXPERTS

Marcum LLP, an independent registered public accounting firm, has audited our financial statements at and for the year ended December 31, 2022 and the nine-month period ended December 31, 2021 as set forth in its report included in our annual report on Form 10-K and transition report on Form 10-KT for the twelve and nine months ended December 31, 2022 and 2021, respectively, which are incorporated by reference into this prospectus and elsewhere in the registration statement of which this prospectus is a part. Our financial statements are incorporated by reference in reliance on Marcum LLP's reports, given on their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate by reference” into this prospectus the information we file with the SEC, which means that we can disclose important information to you by referring you to those documents. Any information referenced this way is considered to be part of this prospectus, and any information that we file later with the SEC will automatically update and, where applicable, supersede this information. We incorporate by reference the following documents that we have filed with the SEC (other than, in each case, documents or information deemed to have been furnished and not filed in accordance with the SEC’s rules):

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2022, filed with the Securities and Exchange Commission on March 31, 2023; and
- our Transitional Report on [Form 10-K](#) for the nine months ended December 31, 2021, filed with the Securities and Exchange Commission on March 31, 2022; and
- our Quarterly Report on [Form 10-Q](#) for the three months ended March 31, 2023, filed with the Securities and Exchange Commission on May 22, 2023; and
- our Current Reports on Form 8-K filed with the Securities and Exchange Commission on [January 4, 2023](#), [February 3, 2023](#), [March 6, 2023](#), [March 27, 2023](#), [April 6, 2023](#), [May 18, 2023](#), [May 30, 2023](#), [June 6, 2023](#), [June 15, 2023](#), [June 30, 2023](#), [July 14, 2023](#), [July 24, 2023](#), [August 7, 2023](#) (other than information “furnished” under Items 2.02 or 7.01, or corresponding information furnished under Item 9.01 or included as an exhibit); and
- the description of our common stock contained in the registration statement on [Form 8-A](#), dated January 22, 2021, File No. 001-39924, and any other amendment or report filed for the purpose of updating such description.

Additionally, all documents filed by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after (i) the date of the initial filing of the registration statement to which this prospectus relates and prior to effectiveness of such registration statement, and (ii) the date of this prospectus and before the termination or completion of any offering hereunder, shall be deemed to be incorporated by reference into this prospectus from the respective dates of filing of such documents, except that we do not incorporate any document or portion of a document that is “furnished” to the SEC, but not deemed “filed.” We will not, however, incorporate by reference in this prospectus any documents or portions thereof that are not deemed “filed” with the SEC, including any information furnished pursuant to Item 2.02 or Item 7.01 of our current reports on Form 8-K unless, and except to the extent, specified in such current reports.

The documents incorporated by reference into this prospectus are also available on our corporate website at www.crownnek.com. We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus. You may request a copy of this information at no cost, by writing or telephoning us at the following address or telephone number:

Crown Electrokinetic Corp.
Attention: Chief Financial Officer
1110 NE Circle Blvd.
Corvallis, Oregon 97330
(800) 674-3612

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the securities being offered by this prospectus. This prospectus does not contain all of the information in the registration statement of which this prospectus is a part and the exhibits to such registration statement. For further information with respect to us and the securities offered by this prospectus, we refer you to the registration statement of which this prospectus is a part and the exhibits to such registration statement. Statements contained in this prospectus as to the contents of any contract or any other document are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement of which this prospectus is a part. Each of these statements is qualified in all respects by this reference.

The registration statement of which this prospectus is a part is available at the SEC's website at <http://www.sec.gov>. You may also request a copy of these filings, at no cost, by writing us at 1110 NE Circle Blvd., Corvallis, Oregon 97330, Attention: Chief Financial Officer or telephoning us at (800) 674-3612.

We are subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information are available at the SEC's website referred to above. We also maintain a website at www.crownek.com. You may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

[_____] Shares of Common Stock
Warrants to Purchase up to [_____] Shares of Common Stock
Up to [_____] Shares of Common Stock underlying Warrants
Pre-Funded Warrants to purchase up to [_____] Shares of Common Stock
Up to [_____] Shares of Common Stock underlying Pre-Funded Warrants

CROWN ELECTROKINETICS CORP.

PROSPECTUS

Roth Capital Partners

The date of this prospectus is _____, 2023

PART II — INFORMATION NOT REQUIRED IN THE PROSPECTUS**Item 13. Other Expenses of Issuance and Distribution.**

The following table sets forth an estimate of the fees and expenses relating to the issuance and distribution of the securities being registered hereby, all of which shall be borne by the registrant. All of such fees and expenses, except for the Securities and Exchange Commission (“SEC”) registration and the FINRA filing fee, are estimated:

SEC registration fee	\$	<input type="text"/>
FINRA filing fee	\$	<input type="text"/>
Transfer agent and registrar fees and expenses	\$	<input type="text"/>
Legal fees and expenses	\$	<input type="text"/>
Printing fees and expenses	\$	<input type="text"/>
Accounting fees and expenses	\$	<input type="text"/>
Miscellaneous fees and expenses	\$	<input type="text"/>
Total	\$	<input type="text"/>

Item 14. Indemnification of Directors and Officers.

Under Delaware law, a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than one by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, against judgments, fines, amounts paid in settlement and reasonable expenses, including attorneys’ fees actually and necessarily incurred as a result of such action or proceeding, if such director or officer acted, in good faith, for a purpose which such person reasonably believed to be, in, or not opposed to, the best interests of the corporation and, in criminal actions or proceedings, in addition, had no reasonable cause to believe that such conduct was unlawful.

In the case of a derivative action, a Delaware corporation may indemnify any such person against expense, including attorneys’ fees actually and necessarily incurred by such person in connection with the defense or settlement of such action or suit if such director or officer if such director or officer acted, in good faith, for a purpose which such person reasonably believed to be, in or not opposed to, the best interests of the corporation, except that no indemnification will be made in respect on any claim, issue or matter as to which such person will have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery of the State of Delaware or any other court in which such action was brought determines such person is fairly and reasonably entitled to indemnity for such expense.

Delaware Law permits a corporation to include in its certificate of incorporation a provision eliminating or limiting a director’s liability to a corporation or its stockholders for monetary damages for breaches of fiduciary duty. Delaware Law provides, however, that liability for breaches of the duty of loyalty, acts or omissions not in good faith or involving intentional misconduct, or knowing violation of the law, and the unlawful purchase or redemption of stock or payment of unlawful purchase or redemption of stock or payment of unlawful dividends or the receipt of improper personal benefits cannot be eliminated or limited in this manner.

Our Certificate of Incorporation and Bylaws provide that we will indemnify our directors to the fullest extent permitted by Delaware law and may, if and to the extent authorized by the Board of Directors, indemnify our officers and any other person whom we have the power to indemnify against any liability, reasonable expense or other matter whatsoever.

Any amendment, modification or repeal of the foregoing provisions shall be prospective only, and shall not affect any rights or protections of any of our directors existing as of the time of such amendment, modification or repeal.

We may also, at the discretion of the Board of Directors, purchase and maintain insurance to the fullest extent permitted by Delaware law on behalf of any of our directors, officers, employees or agents against any liability asserted against such person and incurred by such person in any such capacity.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the Registrant pursuant to the foregoing, the Registrant has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 15. Recent Sales of Unregistered Securities

The following is a summary of all of our securities sold by us within the past three years which were not registered under the Securities Act, as retrospectively adjusted to reflect our 1-for-60 reverse stock split made effective on August 14, 2023 (the “Reverse Stock Split”):

September 2020 Private Placement the (“September 2020 Offering”)

On September 11, 2020, we entered into a securities purchase agreement with certain institutional and accredited investors to sell an aggregate of 1,390,000 unregistered shares of Common Stock at a price of \$1.25 per share and 695,000 five-year warrants to purchase Common Stock, at an exercise price of \$1.50 per share, subject to customary adjustments, in a private placement transaction for gross proceeds of approximately \$1,737,500.

The September 2020 offering was conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

November 2020 Private Placement the (“November 2020 Offering”)

On November 13, 2020, we entered into a securities purchase agreement with certain institutional and accredited investors to sell senior convertible debentures convertible into shares of the Company’s Common Stock at a conversion price of \$1.25 per share, subject to adjustment. The debentures had a maturity of one year, accrued interest at the rate of 7% per year, and were subject to 12.5% original issue discount. Each purchaser also received a five-year warrant to purchase a number of shares of the Company’s Common Stock, at an exercise price of \$1.55 per share, equal to 50% of the number of shares such purchaser’s debenture was convertible into.

The November 2020 offering was conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

2021 Underwriter Warrant

On January 28, 2021, the Company issued to Roth Capital Partners, LLC a five-year warrant to purchase 381,800 shares of Common Stock at an exercise price of \$5.625 per share. The issuance was conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

March 2021 Private Placement (the “March 2021 Offering”)

On March 31, 2021, we entered into a conversion agreement with one of our lenders, pursuant to which the Company agreed to issue to the lender 380,000 of Common Stock and 500,756 shares of the Company’s Series C Preferred Stock in exchange for the conversion in full of convertible promissory notes held by the lender in an aggregate principal amount of \$750,000.

The March 2021 offering was conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

2022 Underwriter Warrant

On July 22, 2022, the Company issued to Roth Capital Partners, LLC a five-year warrant to purchase 62,500 shares of Common Stock at an exercise price of \$0.50 per share. The issuance was conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

July 2022 Private Placement (the “July 2022 Offering”)

On July 26, 2022, we entered into a securities purchase agreement with certain accredited investors, pursuant to which we sold an aggregate of 1,058 shares of the Company’s Series D Preferred Stock for an aggregate purchase price of approximately \$1.06 million. In addition, in connection with the issuance of the Series D Preferred Stock, the purchasers received a five-year warrant to purchase an aggregate of 814,102 shares of the Company’s Common Stock, exercisable at an exercise price of \$1.30 per share of Common Stock, subject to certain adjustments.

The July 2022 Offering was conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

October 2022 Private Placement (the “October 2022 Offering”)

On October 19, 2022, we entered into a securities purchase agreement with certain accredited investors as purchasers (the “October Investors”), whereby the Company sold, and the October Investors purchased, approximately \$5.4 million in principal amount of senior secured convertible notes (the “October Notes”) and warrants (the “October Warrants”).

The October Notes were issued with a conversion price at a 54% premium to the most recent closing price, an original issue discount of 35%, did not bear interest, and matured upon the earlier of twelve months from the date of issuance or the closing of a change of control transaction (as defined in the October Notes). The October Notes were convertible into shares of the Company’s Common Stock, at a conversion price per share of \$0.49, subject to adjustment under certain circumstances described in the October Notes. To secure its obligations thereunder, the Company granted a security interest over all of its assets to the collateral agent for the benefit of the October Investors pursuant to a security agreement, subject to exceptions for certain strategic transactions. The October Warrants are exercisable for five (5) years to purchase an aggregate of 21,759,403 shares of Common Stock at an exercise price of \$0.32, subject to adjustment under certain circumstances described in the Warrants. On February 28, 2023, the Company entered into waiver agreements (the “Waiver Agreements”) with the October Investors pursuant to which, among other things, the maturity date of the October Notes was extended. In connection with the Waiver Agreements, the Company issued warrants (the “Waiver Warrants”) to the October Investors. The Waiver Warrants were exercisable for five (5) years to purchase an aggregate of 5,813,414 shares of the Company’s Common Stock at an exercise price of \$0.32 per share, subject to adjustment under certain circumstances described in the Waiver Warrants.

The October 2022 Offering and subsequent issuances were conducted in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

January 2023 Private Placement (the “January 2023 Offering”)

On January 3, 2023, the Company entered into a Securities Purchase Agreement (the “January Purchase Agreement”) with certain accredited investors as purchasers (the “January Investors”). Pursuant to the January Purchase Agreement, the Company sold, and the January Investors purchased, \$1.2 million in principal amount of senior secured notes (the “January Notes”) and 2,500,000 warrants (“January Warrants”), each January Warrant entitling the holder to purchase one share of Common Stock.

On May 8, 2023, the lead lender and collateral agent for the January Notes agreed to grant the Company an extension of the maturity date thereof until May 15, 2023 in exchange for the issuance by the Company to the January Investors, on a pro rata basis, of 710,000 shares of the Company’s Common Stock, subject to approval by the Company’s stockholders. Then, on May 15, 2023, the lead lender and collateral agent for the January Notes agreed to grant the Company an extension of the maturity date thereof until May 23, 2023 in exchange for the issuance by the Company to the January Investors, on a pro rata basis, of 4,000,000 shares of the Company’s Common Stock, subject to approval by the Company’s stockholders. Subsequently, on May 23, 2023, the lead lender and collateral agent for the January Notes agreed to grant the Company an extension of the maturity date thereof until May 31, 2023 in exchange for the issuance by the Company to the January Investors, on a pro rata basis, of 1,500,000 shares of the Company’s Common Stock, subject to approval by the Company’s stockholders. Thereafter, on May 31, 2023, the lead lender and collateral agent for the January Notes agreed to grant the Company an extension of the maturity date thereof until June 12, 2023 in exchange for the issuance by the Company to the January Investors, on a pro rata basis, of 6,000,000 shares of the Company’s Common Stock, subject to approval by the Company’s stockholders. On June 30, 2023, the Company and the remaining January Investors agreed to extend the maturity date of the January Notes until July 31, 2023, in exchange for 2,500,000 shares of Common Stock, pending stockholder approval. On July 11, 2023, one of the remaining January Investors agreed with the Company to accept 9,125,058 shares of the Company’s Common Stock as payment in full of their January Note, which such obligations were approximately \$931,000. On July 14, 2023, another of the remaining January Investors agreed with the Company to accept 1,508,571 shares of Common Stock as payment in full of their January Note, which such obligations were approximately \$132,000.

The January 2023 Offering and the subsequent issuances of Common Stock were made in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

February 2023 Private Placement (the “February 2023 Offering”)

On February 2, 2023, the Company entered into a Line of Credit Agreement (the “Line of Credit”) with a lender (the “LOC Lender”), pursuant to which the LOC Lender extended to the Company a secured line of credit in an

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amount not to exceed \$100,000,000, to be used to fund expenses related to the fulfillment of contracts with customers of Crown Fiber Optics, the Company's wholly-owned subsidiary. In connection therewith, the Company issued to the LOC Lender a secured promissory note (the "LOC Note") in a principal amount equal to \$2,000,000.

On May 15, 2023, the Company entered into that certain Third Amendment to the Convertible Promissory Note (the "LOC Note Amendment") with the LOC Lender, pursuant to which the LOC Lender agreed to extend the maturity date of the LOC Note until June 7, 2023 in exchange for, subject to stockholder approval, 2,000,000 shares of the Company's Common Stock and 4,000 shares of the Company's existing Series E Preferred Stock, which are convertible into 4,000,000 shares of the Company's Common Stock.

On May 30, 2023, the Company issued a convertible promissory note (the "May Note") to the LOC Lender in an aggregate principal amount equal to \$150,000. The May Note was due and payable at any time upon demand by the May Holder after the earlier of (i) the consummation of the Company's first securities offering after the issuance of the May Note and (ii) June 2, 2023. In connection with the issuance of the May Note, subject to stockholder approval, the Company agreed to issue to the LOC Lender 4,000 shares of the Company's existing Series E Preferred Stock, which is convertible into 4,000,000 shares of the Company's Common Stock.

On June 30, 2023, subject to stockholder approval, the Company agreed to issue an additional 8,000 shares of Series E Preferred Stock, which is convertible into 8,000,000 shares of Common Stock, to the LOC Lender for failure to comply with a covenant in the Line of Credit, as amended. In addition, on June 30, 2023, the Company and the LOC Lender agreed to extend the maturity of all promissory notes under the Line of Credit until July 16, 2023 in exchange for, subject to stockholder approval, the issuance of 5,000 shares of Series E Preferred Stock, which is convertible into 5,000,000 shares of Common Stock.

The February 2023 Offering and the subsequent issuances of Series E Preferred Stock and Common Stock were made in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

Demand Notes

Between May 17, 2023 and May 30, 2023, the Company issued secured demand promissory notes (the "Demand Notes") to certain investors (the "Demand Noteholders") in an aggregate principal amount equal to \$570,681. In connection with the issuance of the Demand Notes, subject to stockholder approval, the Company agreed to issue to the Demand Noteholders an aggregate of 7,413,622 shares of the Company's Common Stock.

The issuances of Common Stock in connection with the Demand Notes were made in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

June 2023 Exchange Agreements

On June 4, 2023, the Company entered into Exchange Agreements (the "Exchange Agreements"): (i) with the October Investors for the exchange of October Notes in the aggregate principal amount of \$2,616,740 for 2,622 shares of the Company's newly created Series F Convertible Preferred Stock ("Series F Preferred Stock"), in the aggregate; (ii) with the January Investors for the exchange of January Notes in the aggregate principal amount of \$205,276 for 206 shares of Series F Preferred Stock, in the aggregate; (iii) with the Demand Noteholders for the exchange of Demand Notes in the principal amount of \$570,279 for 576 shares of Series F Preferred Stock, in the aggregate; and (iv) with the Series D Purchasers for the exchange of 1,197 shares of Series D Preferred Stock for 1,847 shares of Series F Preferred Stock, in the aggregate.

In addition, in connection with the Exchange Agreements, the Company issued, subject to stockholder approval, new five-year warrants to purchase an aggregate of 35,527,740 shares of Common Stock (the "Series F Warrants") to the October Investors, the January Investors, and the Series D Purchasers. The Series F Warrants are exercisable at an exercise price of \$0.1478 per share of Common Stock, subject to certain adjustments as set forth in the Series F Warrants. The holders may exercise the Series F Warrants on a cashless basis if the shares of our Common Stock underlying the Series F Warrants are not then registered pursuant to an effective registration statement.

The issuances of the Series F Preferred Stock and the Series F Warrants pursuant to the Exchange Agreements were made in reliance on the exemption from registration provided by Section 3(a)(9) of the Securities Act of 1933, as amended.

Series F-1 Preferred Stock Offering

On June 13, 2023, we entered into a Securities Purchase Agreement (the “F-1 Purchase Agreement”) with certain accredited investors (the “F-1 Purchasers”), pursuant to which, at the closing of the transactions contemplated by the F-1 Purchase Agreement (the “F-1 Closing”) the F-1 Purchasers agreed to purchase an aggregate of 3,583 shares of the Company’s newly created Series F-1 Convertible Preferred Stock (“Series F-1 Preferred Stock”) for an aggregate purchase price of approximately \$2,327,760. In addition, in connection with the issuance of the Series F-1 Preferred Stock, the F-1 Purchasers received five-year warrants to purchase an aggregate of 23,902,602 shares of Common Stock (the “Series F-1 Warrants”). The Series F-1 Warrants are exercisable at an exercise price of \$0.1499 per share of our Common Stock, subject to certain adjustments as set forth in the Series F-1 Warrants. The holders may exercise the Series F-1 Warrants on a cashless basis if the shares of our Common Stock underlying the Warrants are not then registered pursuant to an effective registration statement.

The issuances of the Series F-1 Preferred Stock and the Series F-1 Warrants pursuant to the Exchange Agreements were made in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

Series F-2 Preferred Stock Offering

On June 14, 2023, we entered into a Securities Purchase Agreement (the “F-2 Purchase Agreement”) with certain accredited investors (the “F-2 Purchasers”), pursuant to which, at the closing of the transactions contemplated by the F-2 Purchase Agreement (the “F-2 Closing”) the F-2 Purchasers agreed to purchase an aggregate of 1,153 shares of the Company’s newly created Series F-2 Convertible Preferred Stock (“Series F-2 Preferred Stock”) for an aggregate purchase price of approximately \$748,735. In addition, in connection with the issuance of the Series F-2 Preferred Stock, the F-2 Purchasers received five-year warrants to purchase an aggregate of 7,496,749 shares of Common Stock (the “Series F-2 Warrants”). The Series F-2 Warrants are exercisable at an exercise price of \$0.1538 per share of our Common Stock, subject to certain adjustments as set forth in the Series F-2 Warrants. The holders may exercise the Series F-2 Warrants on a cashless basis if the shares of our Common Stock underlying the Series F-2 Warrants are not then registered pursuant to an effective registration statement.

The issuances of the Series F-2 Preferred Stock and the Series F-2 Warrants pursuant to the Exchange Agreements were made in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, and Regulation D promulgated thereunder.

Item 16. Exhibits.

The list of exhibits in the Exhibit Index to this registration statement is incorporated herein by reference.

Item 17. Undertakings.

- (a) The undersigned registrant hereby undertakes:
 - (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) that, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in the volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement; and

- (iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii), and (a)(1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is a part of the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered that remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (i) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (5) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
 - (i) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the Corvallis, Oregon, on August 14, 2023.

Crown Electrokinetics Corp.
By: /s/ Doug Croxall
Doug Croxall
Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Doug Croxall and Joel Krutz as his true and lawful attorneys-in-fact and agents, each acting alone, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement on Form S-1 and any subsequent registration statement the Registrant may hereafter file with the Securities and Exchange Commission pursuant to Rule 462 under the Securities Act to register additional securities in connection with this registration statement, and to file this registration statement, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in order to effectuate the same as fully, to all intents and purposes, as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Doug Croxall Doug Croxall	Chairman and Chief Executive Officer (Principal Executive Officer)	August 14, 2023
/s/ Joel Krutz Joel Krutz	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	August 14, 2023
/s/ Daniel Marcus Daniel Marcus	Director	August 14, 2023
/s/ Dr. DJ Nag Dr. DJ Nag	Director	August 14, 2023

EXHIBIT INDEX

Exhibit No.	Exhibit Description
1.1†	Form of Placement Agency Agreement by and between Crown Electrokinetics Corp. and Roth Capital Partners, LLC, as exclusive placement agent thereunder.
3.1	Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the registrant's Form S-1/A filed on September 18, 2019).
3.2	Certificate of Amendment to Certificate of Incorporation of Crown Electrokinetics Corp. (incorporated by reference to Exhibit 3.1 to the registrant's Form 8-K filed on January 27, 2021).
3.3	By-laws (incorporated by reference to Exhibit 3.2 to the registrant's Form S-1/A filed on September 18, 2019).
3.4	Form of Amended and Restated Certificate of Designations, Preferences and Rights of Series A Preferred Stock of Crown Electrokinetics Corp. (incorporated by reference to Exhibit 3.3 to the registrant's Form S-1/A filed on January 25, 2021).
3.5	Form of Amended and Restated Certificate of Designations, Preferences and Rights of Series B Preferred Stock of Crown Electrokinetics Corp. (incorporated by reference to Exhibit 3.4 to the registrant's Form S-1/A filed on January 25, 2021).
3.6	Form of Certificate of Designations, Preferences and Rights of Series C Preferred Stock of Crown Electrokinetics Corp. (incorporated by reference to Exhibit 3.1 to the registrant's Form 8-K filed on April 6, 2021).
3.7	Certificate of Designations, Preferences and Rights of Series D Preferred Stock of Crown Electrokinetics Corp. (incorporated by reference to Exhibit 3.4 to the registrant's Form 8-K filed on July 8, 2022).
3.8	Amendment No. 1 to Series D Preferred Stock Certificate of Designations, Preferences and Rights (incorporated by reference to Exhibit 3.1 to the registrant's Form 8-K filed on February 3, 2023).
3.9	Series E Preferred Stock Certificate of Designations, Preferences and Rights (incorporated by reference to Exhibit 3.2 to the registrant's Form 8-K filed on February 3, 2023).
3.10	Series F Certificate of Designation filed with the Secretary of State of Delaware (incorporated by reference to Exhibit 3.1 to the registrant's Form 8-K filed on June 6, 2023).
3.11	Certificate of Amendment to Certificate of Incorporation, as amended, filed with the Secretary of State of Delaware (incorporated by reference to Exhibit 3.1 to the registrant's Form 8-K filed on June 15, 2023).
3.12	Series F-1 Certificate of Designations filed with the Secretary of State of Delaware (incorporated by reference to Exhibit 3.2 to the registrant's Form 8-K filed on June 15, 2023).
3.13	Series F-2 Certificate of Designations filed with the Secretary of State of Delaware (incorporated by reference to Exhibit 3.3 to the registrant's Form 8-K filed on June 15, 2023).
4.1	Form of Warrant, dated June 3, 2020, by and between the registrant and Hudson Pacific Properties, L.P. (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on April 6, 2021).
4.2	Form of Warrant, dated January 28, 2021, by and between the registrant and Roth Capital Partners, LLC (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on January 27, 2021).
4.3	Form of Warrant, dated July 19, 2022, by and between the registrant and Roth Capital Partners, LLC (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on July 22, 2022).
4.4	Form of Warrant, dated July 26, 2022, by and between the registrant and certain investors (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on July 29, 2022).
4.5	Form of Warrant, by and between the registrant and certain investors (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on October 20, 2022).
4.6	Form of Senior Note, by and between the registrant and certain investors (incorporated by reference to Exhibit 4.2 to the registrant's Form 8-K filed on October 20, 2022).
4.7	Form of Warrant, among the registrant and certain investors (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on January 4, 2023).
4.8	Form of Senior Note, among the registrant and certain investors (incorporated by reference to Exhibit 4.2 to the registrant's Form 8-K filed on January 4, 2023).
4.9	Form of Warrant, between the registrant and a certain lender (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on February 3, 2023).
4.10	Form of Promissory Note, between the registrant and a certain lender (incorporated by reference to Exhibit 4.2 to the registrant's Form 8-K filed on February 3, 2023).

Exhibit No.	Exhibit Description
4.11	Form of Waiver Warrant, among the registrant and certain investors (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on March 6, 2023).
4.12	Form of Exchange Warrant, among the registrant and certain investors (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on June 6, 2023).
4.13	Form of Series F-1 Preferred Stock Warrant, among the registrant and certain investors (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K filed on June 15, 2023).
4.14	Form of Series F-2 Preferred Stock Warrant, among the registrant and certain investors (incorporated by reference to Exhibit 4.2 to the registrant's Form 8-K filed on June 15, 2023).
4.15†	Form of Warrant Agency Agreement.
4.16†	Form of Warrant
4.17†	Form of Pre-Funded Warrant
5.1†	Opinion of Pryor Cashman LLP, regarding legality of shares being registered.
10.1	Intellectual Property Agreement, dated as of January 31, 2016, between Hewlett-Packard Development Company, L.P. and 3D Nanocolor Corp. (and amendments thereto) (incorporated by reference to Exhibit 10.1 to the registrant's Form S-1/A filed on September 18, 2019).
10.2	Fourth Amendment to Intellectual Property Agreement, dated February 4, 2021, by and among Hewlett-Packard Development Company, L.P., HP, Inc. and Crown Electrokinetics Corp. (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on February 10, 2021).
10.3	Collaboration Agreement, dated as of August 23, 2017, between 3D Nanocolor Corp. and Eastman Chemical Company (and amendment thereto) (incorporated by reference to Exhibit 10.2 to the registrant's Form S-1/A filed on September 18, 2019).
10.4	Agreement, dated as of November 15, 2017, between Crown Electrokinetics Corp. and Asahi Glass Co., Ltd. (and amendment thereto) (incorporated by reference to Exhibit 10.3 to the registrant's Form S-1/A filed on September 18, 2019).
10.5	Agreement, dated as of February 1, 2019, between Crown Electrokinetics Corp. and AGC Inc. (f/k/a Asahi Glass Co., Ltd.) (incorporated by reference to Exhibit 10.4 to the registrant's Form S-1/A filed on September 18, 2019).
10.6	Employment Agreement, dated June 16, 2021, by and between Crown Electrokinetics Corp. and Doug Croxall (incorporated by reference to Exhibit 10.6 to the registrant's Transition Report on Form 10-KT filed on March 30, 2022).
10.7	Employment Agreement, dated February 20, 2021, by and between Crown Electrokinetics Corp. and Edward Kovalik (incorporated by reference to Exhibit 10.7 to the registrant's Transition Report on Form 10-KT filed on March 30, 2022).
10.8	Independent Contractor/Consulting Agreement, dated February 25, 2021, by and between Crown Electrokinetics Corp. and Kaizen Reserve, Inc. (incorporated by reference to Exhibit 10.8 to the registrant's Transition Report on Form 10-KT filed on March 30, 2022).
10.9	Employment Agreement, dated June 21, 2021, by and between Crown Electrokinetics Corp. and Joel Krutz (incorporated by reference to Exhibit 10.9 to the registrant's Transition Report on Form 10-KT filed on March 30, 2022).
10.10	Master Supply Agreement, dated September 27, 2021, between MetroSpaces Inc. and Crown Electrokinetics Corp. (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on September 30, 2021).
10.11	Master Supply Agreement, dated December 23, 2021, between Hudson Pacific Properties, L.P. and Crown Electrokinetics Corp. (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on December 23, 2021).
10.12	Master Supply Agreement, dated March 25, 2022, between Brandywine Operating Partnership, L.P. and Crown Electrokinetics Corp. (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on March 28, 2022).
10.13	Sales Agreement, dated as of March 30, 2022, by and between Crown Electrokinetics Corp. and A.G.P./Alliance Global Partners (incorporated by reference to Exhibit 10.1 of the registrant's Form 8-K filed on March 31, 2022).
10.14	Form of Securities Purchase Agreement, dated July 26, 2022, between the Company and the Purchasers (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K dated July 29, 2022).
10.15	Form of Registration Rights Agreement, dated July 26, 2022, between the Company and the Purchasers (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on July 29, 2022).

Exhibit No.	Exhibit Description
10.16	Form of Securities Purchase Agreement, dated October 19, 2022, between the Company and the Investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on October 20, 2022).
10.17	Form of Registration Rights Agreement, dated October 19, 2022, between the Company and the Investors (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on October 20, 2022).
10.18	Form of Security Agreement, dated October 19, 2022, between the Company and the Collateral Agent (incorporated by reference to Exhibit 10.3 to the registrant's Form 8-K filed on October 20, 2022).
10.19	Form of Asset Purchase Agreement, dated January 3, 2023, between the Company and Amerigen 7 LLC (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on January 4, 2023).
10.20	Form of Securities Purchase Agreement, dated January 3, 2023, among the registrant and certain investors (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on January 4, 2023).
10.21	Form of Line of Credit Agreement, dated February 2, 2023, between the registrant and a certain lender (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on February 3, 2023).
10.22	Form of Waiver Agreement, dated February 28, 2023, among the registrant and certain investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on March 6, 2023).
10.23	Form of Waiver Agreement and Amendment, dated March 24, 2023, among the registrant and certain investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on March 27, 2023).
10.24	Form of Inducement Agreement, among the registrant and certain investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on May 18, 2023).
10.25	Form of LOC Note Amendment, dated May 15, 2023, between the registrant and a certain lender (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on May 18, 2023).
10.26	Form of Demand Note, among the registrant and certain investors (incorporated by reference to Exhibit 10.3 to the registrant's Form 8-K filed on May 18, 2023).
10.27	Form of Exchange Agreement, among the registrant and certain investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on June 6, 2023).
10.28	Form of Demand Note, among the registrant and certain investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on June 6, 2023).
10.29	Form of May Note, among the registrant and certain investors (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on June 6, 2023).
10.30	Form of Securities Purchase Agreement, among the registrant and certain investors (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on June 15, 2023).
10.31	Form of Registration Rights Agreement, among the registrant and certain investors (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on June 15, 2023).
10.32	Form of Securities Purchase Agreement, among the registrant and certain investors (incorporated by reference to Exhibit 10.3 to the registrant's Form 8-K filed on June 15, 2023).
10.33	Forbearance Agreement, among the registrant and a certain investor (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on July 14, 2023).
10.34	First Amendment to Forbearance Agreement, among the registrant and a certain investor (incorporated by reference to Exhibit 10.2 to the registrant's Form 8-K filed on July 14, 2023).
10.35	Common Stock Purchase Agreement, dated July 20, 2023, by and between the Company and Keystone Capital Partners, LLC (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on July 24, 2023).
10.36	Registration Rights Agreement, dated July 20, 2023, by and between the Company and Keystone Capital Partners, LLC (incorporated by reference to Exhibit 10.1 to the registrant's Form 8-K filed on July 24, 2023).
10.37†	Form of Securities Purchase Agreement
10.38†	[Form of Leak-out Agreement]
21.1	List of Subsidiaries of the Registrant.
23.1*	Consent of Marcum LLP
23.2†	Consent of Pryor Cashman LLP (included in their opinion filed as Exhibit 5.1).
24.1*	Powers of Attorney (included on the signature page of this registration statement on Form S-1)

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Exhibit No.	Exhibit Description
101.INS*	Inline XBRL Instance Document.
101.SCH*	Inline XBRL Taxonomy Extension Schema Document.
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104*	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).
107*	Filing Fee Table

* Filed herewith

† To be filed by amendment.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in this Registration Statement of Crown Electrokinetics Corp. on Form S-1, of our report, which includes an explanatory paragraph as to the Company's ability to continue as going concern dated March 31, 2023, with respect to our audits of the consolidated financial statements of Crown Electrokinetics Corp. as of December 31, 2022 and 2021, and for the year ended December 31, 2022 and the nine months ended December 31, 2021, appearing in the Annual Report on Form 10-K of Crown Electrokinetics Corp. for the year ended December 31, 2022. We also consent to the reference to our firm under the heading "Experts" in the Prospectus, which is part of this Registration Statement.

Our report on the consolidated financial statements refers to a change in the method of accounting for leases effective January 1, 2022.

/s/ Marcum llp

Marcum llp
Costa Mesa, CA
August 14, 2023

Calculation of Filing Fee Tables

Form S-1
(Form Type)Crown Electrokinetics Corp.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price(1)	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial effective date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
Newly Registered Securities											
Fees to Be Paid	Equity	Common Stock, par value \$0.0001 per share (2)	457(o)	-	-	\$ 0.00011020	\$ 1,322.40				
Fees to Be Paid	Equity	Common Stock, \$0.0001 par value per share, issuable upon the exercise of the Warrants (2)	457(o)	-	-	\$ 0.00011020	\$ 2,644.80				
Fees to Be Paid	Equity	Common Stock, \$0.0001 par value per share, issuable upon the exercise of the Pre-Funded Warrants (2)	457(g)	-	-	-	(4)				
Fees to Be Paid	Equity	Warrants	457(g)	-	-	-	(4)				
Fees to Be Paid	Equity	Pre-Funded Warrants	457(g)	-	-	(3)	(4)				
Fees Previously Paid	-	-	-	-	-	-	-				
Carry Forward Securities											
Carry Forward Securities	-	-	-	-	-	-	-				
Total Offering Amounts					\$ 36,000,000		\$ 3,967.20				
Total Fees Previously Paid							\$ 0				
Total Fee Offsets							\$ 0				
Net Fee Due							\$ 3,967.20				

- (1) Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended (the “Securities Act”).
- (2) Pursuant to Rule 416 under the Securities Act, this registration statement also registers an indeterminate number of shares of the registrant’s Common Stock which may become issuable by reason of any stock dividend, stock split or other similar transaction effected without the receipt of consideration that results in an increase in the number of the outstanding shares of the Registrant’s Common Stock.
- (3) The proposed maximum aggregate offering price of the Common Stock will be reduced on a dollar-for-dollar basis based on the offering price of any Pre-Funded Warrants issued in the offering, and the proposed maximum aggregate offering price of the Pre-Funded Warrants to be issued in the offering will be reduced on a dollar-for-dollar basis based on the offering price of any Common Stock issued in the offering. Accordingly, the proposed maximum aggregate offering price of the Common Stock, Warrants and Pre-Funded Warrants (including the Common Stock issuable upon exercise of the Pre-Funded Warrants), if any, is \$12,000,000.
- (4) No separate registration fee is payable pursuant to Rule 457(g) under the Securities Act.