



# SINTX Technologies, Inc.

## Initiating Coverage with BUY and \$3.00 Target

*Strong product potential for its silicon nitride biomaterial. We believe expected positive technical and commercialization milestones over the next year to be positive for stock.*

**Initiating with BUY:** We are initiating coverage of SINTX Technologies with a BUY rating. SINTX is an OEM ceramics company that develops and commercializes silicon nitride for medical and non-medical applications.

**Focused on silicon nitride commercialization:** SINTX is focused on developing silicon nitride products for medical and non-medical products in collaboration with medical/non-medical products manufacturers. The company believes that silicon nitride has a superb combination of properties that make it ideally suited for many medical applications. Silicon nitride has strong material performance in demanding and extreme industrial environments which makes it suited for many non-medical applications as well.

**Large market potential:** The company is aiming for wide commercial opportunities across medical (orthopedic surgery, neurological surgery, and dental and maxillofacial surgery) and non-medical (industrial fasteners, valves, aerospace, air-conditioning systems, food industry, and touch-screen glass).

**Still early stage:** SINTX's recent financial performance is reflective of its early product development and commercialization stage. In Q2 2019, the company reported revenue of \$0.2 million (vs. \$0 y-o-y). Q2 pro forma net loss was \$0.7 million and EPS was \$(0.78). For 2019, we expect revenues of \$0.8 million (vs. \$0.1 million y-o-y) and EPS of \$(3.78).

**Key catalysts expected soon:** SINTX's goal over the next year is to reach key technology and sales milestones including: 1) support CTL and drive further adoption of silicon nitride spinal fusion devices 2) develop commercial opportunities outside of spine 3) develop new silicon nitride manufacturing technologies 4) make improvements to its current formulation of silicon nitride to improve properties of the material 5) apply its silicon nitride technology platform to other OEM opportunities.

**New product partners are key:** We believe that the biggest potential variable and challenge to our investment thesis is the ability of the company to successfully develop and commercialize new silicon nitride products. Because its current revenue from sales to CTL Medical are low (and its only source of revenue), the company's growth is dependent on finding new OEM manufacturing partners to develop and sell silicon nitride products.

**However, challenges exist:** SINTX operates in a highly competitive environment and competes against a wide range of other biomaterial and medtech companies that are attempting to replicate or already have similar performance or functionalities as the company's main silicon nitride products.

**Positive high risks versus rewards:** Overall, concerns outweighed by growth prospects and valuation. Though we acknowledge SINTX's long history with silicon nitride in spine implant products, the company has not yet been successful in other product areas. While we expect numerous silicon nitride products to be announced soon, there is still a long road to successful product commercialization. However, we believe the ~billion dollars market potentials presents a high reward for the risks.

**Current valuation attractive:** We calculate a 12-month price target for shares of SINTX to be \$3.00 based on a NPV analysis, representing significant upside from the current share price. We believe this valuation appropriately balances out the company's high risks with the company's high growth prospects and large upside opportunities.

### Company Description

Based in Salt Lake City, UT, SINTX Technologies is an OEM ceramics company that develops and commercializes silicon nitride for medical and non-medical applications.

United States  
Healthcare

September 11, 2019

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## COVERAGE INITIATION

### Rating: BUY

Ticker: SINT

Price: \$1.50

Target: \$3.00

### Stock Data

|                                      |                |
|--------------------------------------|----------------|
| Exchange:                            | NasdaqCM       |
| 52-week Range:                       | \$1.25 – 12.60 |
| Shares Outstanding (million):        | 1.9            |
| Market cap (\$million):              | \$3            |
| EV (\$million):                      | \$0            |
| Debt (\$million):                    | \$0            |
| Cash (\$million):                    | \$3            |
| Avg. Daily Trading Vol. (\$million): | ~\$1           |
| Float (million shares):              | 1.9            |
| Short Interest (million shares):     | ~0             |
| Dividend, annual (yield):            | \$0 (NA%)      |

### Revenues (US\$ million)

|         | <u>2018A</u><br>(Cur.) | <u>2019E</u><br>(Cur.) | <u>2020E</u><br>(Cur.) |
|---------|------------------------|------------------------|------------------------|
| Q1 Mar  | 0.0A                   | 0.1A                   | 0.4E                   |
| Q2 Jun  | 0.0A                   | 0.2A                   | 0.5E                   |
| Q3 Sep  | 0.0A                   | 0.2E                   | 0.6E                   |
| Q4 Dec  | <u>0.1A</u>            | <u>0.3E</u>            | <u>0.7E</u>            |
| Total   | <b>0.1A</b>            | <b>0.8E</b>            | <b>2.0E</b>            |
| EV/Revs | N/A                    | N/A                    | N/A                    |

### Earnings per Share (pro forma)

|        | <u>2018A</u><br>(Cur.) | <u>2019E</u><br>(Cur.) | <u>2020E</u><br>(Cur.) |
|--------|------------------------|------------------------|------------------------|
| Q1 Mar | (30.66)A               | (2.24)A                | (0.69)E                |
| Q2 Jun | (11.19)A               | (0.78)A                | (0.65)E                |
| Q3 Sep | (7.09)A                | (0.77)E                | (0.61)E                |
| Q4 Dec | <u>(1.45)A</u>         | <u>(0.73)E</u>         | <u>(0.58)E</u>         |
| Total  | <b>(26.57)A</b>        | <b>(3.78)E</b>         | <b>(2.53)E</b>         |
| P/E    | N/A                    | N/A                    | N/A                    |

\*Reflects a 1:30 reverse stock split in July 2019

### Important Disclosures

Ascendant Capital Markets LLC seeks to do business with companies covered by its research team. Consequently, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making an investment decision.

**For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report, beginning on page 20.**

### Exhibit 1: SINTX Technologies, Inc. Stock Price (5-year)



Source: Nasdaq.com

## INVESTMENT THESIS

**We are initiating coverage of SINTX Technologies with a BUY rating and a 12-month price target of \$3.00.**

Based in Salt Lake City, UT, SINTX Technologies is an OEM ceramics company that develops and commercializes silicon nitride for medical and non-medical applications. The company believes it is the first and only manufacturer to use silicon nitride in medical applications.

Originally founded as Amedica, the company changed its name to SINTX Technologies in October 2018 when it sold its legacy silicon nitride spine implant business. Prior to the sale, SINTX designed, manufactured, and commercialized silicon nitride products for the spine implant market. Over 33,000 of its silicon nitride spinal implants have been implanted into patients. SINTX sold this business to CTL Medical and now manufactures silicon nitride spine implants for CTL on a 10-year exclusive basis.

The sale of its spine implant business enables SINTX to focus on its core competencies, the research and development of silicon nitride and the design and manufacture of medical and non-medical products made from silicon nitride in collaboration with medical/non-medical products manufacturers. The company believes that silicon nitride has a superb combination of properties that make it ideally suited for long-term human implantation. Other biomaterials are based on bone grafts, metal alloys, and polymers; all of which have well-known practical limitations and disadvantages. Silicon nitride has stronger material performance in demanding and extreme industrial environments.

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Exhibit 2: SINTX Investment Highlights

## SINTX At-A-Glance

**Unique FDA registered and ISO 13485 certified silicon nitride medical device manufacturing plant**

**Leadership in knowledge of silicon nitride biomaterials**

- **NU Spine**
- **30-year independent data**

Exclusive combination of scientific, technical, medical, and manufacturing expertise in silicon nitride

Keys- Bone healing, antimicrobial, and imaging-friendly behavior



## Silicon Nitride Product Pipeline

- Next-generation spinal implant – porous, textured, coated
- Dental implant and/or abutment
- Maxillofacial implant
- Coatings for spine, non-spine, and non-medical
- Polymer / Silicon Nitride composite devices
- Advanced metal-ceramic brazing technology
- Arthroplasty – hips and knees
- Anti-fungal applications in agriculture & consumer products
- Industrial and Defense applications

Source: Company reports.

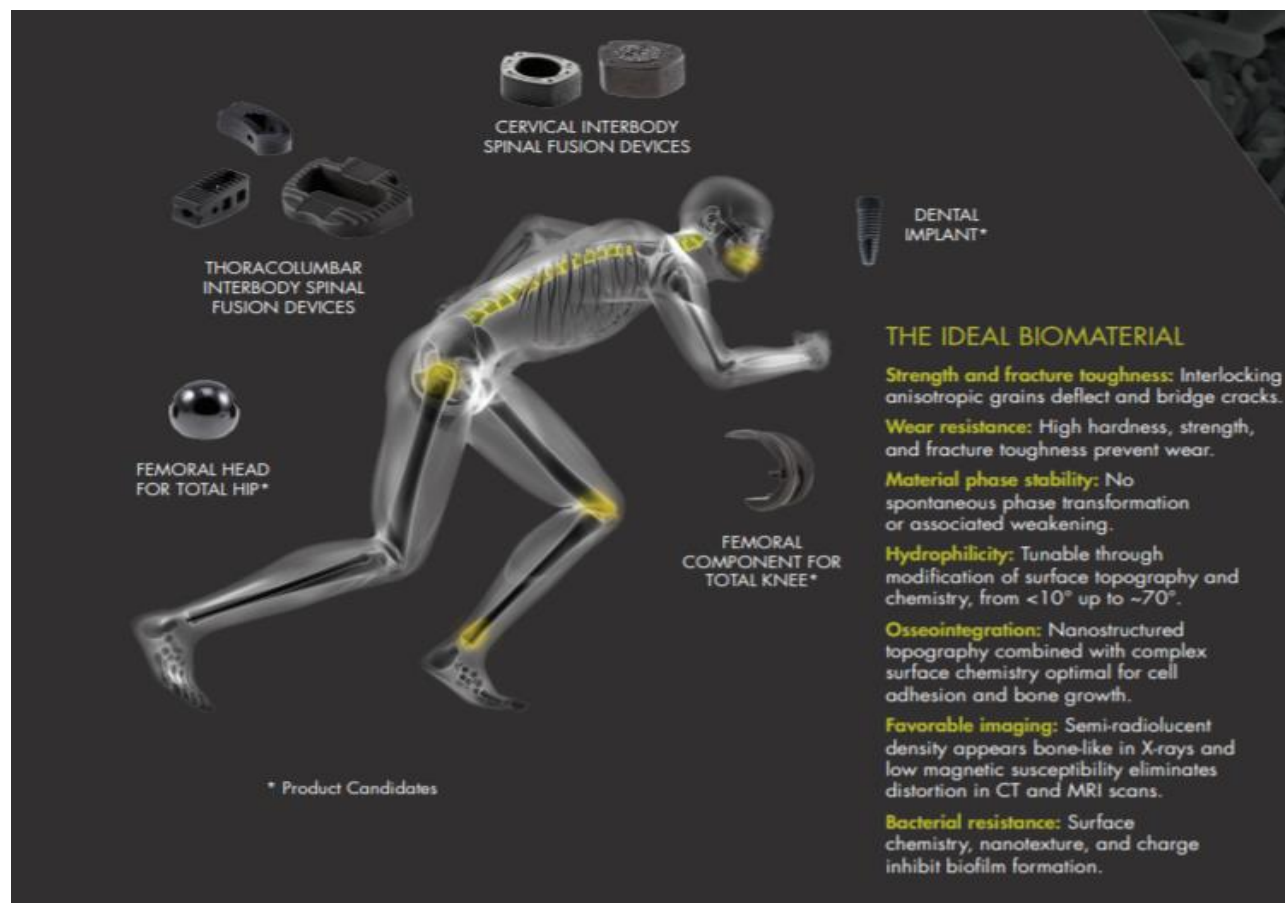
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SINTX's goal is to use its silicon nitride technology platform to become a leading biomaterial company. Its key strengths include:

- **Sole Provider of Silicon Nitride Medical Devices.** SINTX believe it is the only company that designs, develops, manufactures, and sells medical grade silicon nitride-based products.
- **In-House Manufacturing Capabilities for Implantable Medical Devices.** SINTX operates a 30,000 square foot manufacturing facility in Salt Lake City. This facility allows SINTX to rapidly design and produce silicon nitride products while controlling the entire manufacturing process from raw material to finished goods.
- **Extensive Network of Scientific Collaborators.** SINTX has developed strong, long term, collaborative relationships with surgeons who have used its products.
- **Highly Experienced Management and Technical Advisory Team.** Members of SINTX management team have extensive experience in silicon nitride, ceramics, research and development, manufacturing and operations, product development, launching of new products, and selling into the orthopedics markets.

We believe that the biggest potential variable and challenge to our investment thesis is the ability of the company to successfully develop and commercialize new silicon nitride products. Because its current revenue from sales to CTL Medical are low (and its only source of revenue), the company's growth is dependent on finding new OEM manufacturing partners to develop and sell silicon nitride products. Investors will be focused on the key milestones expected this year, including pursuing growth in sales to CTL as well as developing and commercializing new medical and non-medical silicon nitride products.

### Exhibit 3: SINTX's Product Market Opportunity



Source: Company reports.

SINTX's goal over the next year is to reach key technology and sales milestones including:

- Support CTL and drive further adoption of silicon nitride spinal fusion devices.
- Develop commercial opportunities outside of spine.
- Develop new silicon nitride manufacturing technologies.
- Make improvements to its current formulation of silicon nitride to improve properties of the material.
- Apply its silicon nitride technology platform to other OEM opportunities (medical and non-medical).

SINTX's recent financial performance is reflective of its early product development and commercialization stage. In Q2 2019, the company reported revenue of \$0.2 million (vs. \$0 y-o-y). Operating expenses were \$1.6 million, mainly due to research and development, and general and administrative expenses. Q2 pro forma net loss was \$0.7 million and EPS was \$(0.78). For 2019, we expect revenues of \$0.8 million (vs. \$0.1 million y-o-y) and EPS of \$(3.78). For 2020, we expect revenues of \$2.0 million (+150% y-o-y) and EPS of \$(2.53).

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#### Exhibit 4: SINTX Planned 2019 Milestones

## 2019 Objectives

- Support CTL in transitioning and selling silicon nitride spine products
  - Regular orders from CTL for replenishments and additional banks
  - Multiple Product Development projects focused on new designs
- Publish SNAP prospective clinical trial, 4-Center clinical study, and others
- Manufacture and commercialize dental implants and abutments
  - Leverages skill and expertise in zirconia ceramics
- Develop new business in medical device and industrial applications
- Raise capital to fund SINTX through 2019-2020

Source: Company reports.

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The company's balance sheet had ~\$3 million in cash (not counting a ~\$4 million note receivable from CTL) and no debt as of June 2019. We believe SINTX has enough cash to fund its operations through this year, but we estimate that it will need to raise capital next year (estimated Q1 2020).

Our investment thesis factors in an uncertain development and commercialization process for its silicon nitride products, a very competitive industry, and balance sheet and investment uncertainties which is offset by the very large potential upside opportunities created from successful product opportunities. We believe that the current valuation for SINTX has already factored in many of its risks (principally successful product commercialization) but is under valuing its overall growth prospects and product portfolio, resulting in a positive risk versus reward scenario for an investment in SINTX.

#### **We believe the current valuation is attractive.**

Our \$3.00 price target is based on a NPV analysis. Based on our expectations and assumptions, we calculate a 12-month price target for shares of SINTX to be \$3.00, representing significant upside from current share price. We believe this valuation appropriately balances out the company's high risks with the company's high growth prospects and large upside opportunities. We acknowledge that SINTX is still at an early stage in its product commercialization and material device development, but we believe key milestones over the next year should be positive catalysts for the stock.



## INVESTMENT RISKS

### **Product Commercialization Risks**

SINTX's goal is to develop and commercialize products using silicon nitride for medical and non-medical products in collaboration with medical/non-medical products manufacturers. SINTX will need to educate its target market (OEM manufacturers) and to demonstrate superiority (more effective and/or lower costs) of its silicon nitride products. While the company has a long history of commercializing silicon nitride products for the spine implant market, it has not launched any other products so far. The company is aiming for wide commercial opportunities across medical (orthopedic surgery, neurological surgery, and dental and maxillofacial surgery) and non-medical (industrial fasteners, valves, aerospace, air-conditioning systems, food industry, and touch-screen glass). While the market opportunities are large, the sales and product development cycles are long and uncertain (especially for new materials like silicon nitride). There are always significant risks to launch and commercialize new products (with its OEM partners), including design, manufacturing, distribution, and sales.

### **Competition**

SINTX operates in a highly competitive environment and competes against a wide range of other biomaterial and medtech companies that are attempting to replicate or already have similar performance or functionalities as the company's main silicon nitride products. Although SINTX believes that its silicon nitride products are superior to competing products, there are always the possibility of new entrants or difficulties with existing competition. The main alternatives to its silicon nitride biomaterial include: PEEK, which is predominantly manufactured by Invibio; BIOLOX delta, which is a traditional oxide ceramic manufactured by CeramTec; allograft bone; metals; and coated metals. Major competitors in the orthopedic implant market (which utilize a variety of competitive biomaterials) include: Medtronic, DePuy Synthes, Stryker, Zimmer Holdings, and Smith & Nephew. Most of these competitors are much larger or have greater resources, and proprietary technology; which could result in lower projected sales for SINTX's products and higher costs, reduced margins, and lowered profitability for the company.

### **Concentrated Product Pipeline**

The company is currently developing and selling just one novel technology, silicon nitride for medical and non-medical applications. While the company plans to expand its silicon nitride products, the company's only revenue currently is from the manufacture and sale of spinal fusion products to CTL Medical. In addition, the company is trying to expand sales internationally as almost all of its current sales are in the U.S. However, if SINTX were to experience difficulties with development or commercialization of silicon nitride for OEM manufacturers or with sales to CTL, then it would have a material negative impact on its business and financials as there are no meaningful products which can offset (particularly in the near term).

### **Economic Uncertainty**

While healthcare costs tends to be less correlated with economic activity and income levels due to their nondiscretionary nature, major deterioration in economic conditions tends to result in an overall decline in consumer spending. This was demonstrated during the 2008 and 2009 Great Recession and global economic slowdown. While consumer spending levels and economic conditions have improved significantly since and are currently strong, the global macroeconomic environment can change any time. Further economic weakness may result in depressed consumer spending levels; this may have a negative impact on SINTX, OEM medical companies, its business partners, and consumers.

### **Capital Markets Risks**

We believe SINTX has enough cash to fund its operations through this year, but we estimate that it will need to raise capital next year (estimated Q1 2020). The company sales are still low and it will need to expand its OEM products to grow revenue. We believe that it will be at least a year and a half before the company can be cash flow self-sufficient from operations. Many biopharmaceutical/medical device companies fund their operations from the sale of equity or debt capital until their products reach commercial success or until they sell off the commercial rights to other companies. Medical device companies ("medtechs") valuations tend to fluctuate widely, and though they are reasonably strong now (due to a strong M&A market for biotechs and health related companies), there is always the chance that market interests and valuations for companies in this industry decline

significantly. The share price volatility in the past year (with a stock price range of \$1.25 – 12.60) in SINTX’s share price may make capital raising much more difficult and expensive.

## VALUATION

We are initiating coverage of SINTX with a BUY rating and a 12-month price target of \$3.00, which is based on a NPV analysis. As the company is still early in product commercialization as a biomaterial development company, it currently generates low revenues and significant losses so traditional valuation metrics are not useful. We believe a more accurate valuation should take into consideration the potential value of its product pipeline. We do acknowledge that this valuation is complex and requires a large number of forward assumptions that we have to estimate that may be imprecise and may vary significantly from actual results. This is particularly so for a company like SINTX which is still in early product commercialization with its main and other products.

However, we believe our assumptions are fair and provide a reasonable basis for our valuation analysis. Our analysis considers future estimated revenue from each of its major product pipelines (based on estimated future sales, a probability rate of success, and discounted this back to a current value), though our valuation is currently only focused on its Silicon Nitride product line. We apply a high discount rate and about average probability of success to capture the uncertainties associated generally with drugs/devices in development or early product commercialization. We then added up the values, made an assumption about future investments required and allocated the value based on current share count. Based on our NPV analysis, we arrived at our 12-month price target of \$3.00, which we believe appropriately balances out the company’s risks with its high growth prospects.

SINTX’s share price YTD has been weak (~-75% from \$5.40 on December 31, 2018), and it has been in a wide volatile range of \$1.25 – 12.60 within the past year. However, we believe that there are near term catalysts that may drive the stock (particularly for key milestones expected in 2019/2020). As the company is likely to make significant progress (and milestones) in its material device development and product commercialization over the next year, we believe this will result in much improved visibility into future cash flows. We expect valuations for SINTX to improve as visibility into cash flow generation becomes clearer, resulting in significant upside to the current share price.

### **Exhibit 5: Company Valuation (DCF)**

| Product                      | Estimated NPV | % of Success | Calculated NPV | Discount Rate | Estimated Annual Sales | % of Market Share | Market Potential per year |
|------------------------------|---------------|--------------|----------------|---------------|------------------------|-------------------|---------------------------|
| Silicon Nitride product line | \$ 8          | 50%          | \$ 16          | 50%           | \$ 8                   | 20%               | \$ 40                     |
| <b>Total</b>                 | <b>\$ 8</b>   |              |                |               |                        |                   |                           |

|   |                |
|---|----------------|
| Estimated additional investments required | \$ 2.3         |
| Current Value for existing shareholders   | \$ 6           |
| Shares Outstanding (mils)                 | 1.9            |
| <b>Estimated Value per share</b>          | <b>\$ 3.00</b> |

Source: Ascendant Capital Markets estimates

## COMPANY

Based in Salt Lake City, UT, SINTX Technologies is an OEM ceramics company that develops and commercializes silicon nitride for medical and non-medical applications. SINTX was founded in 1996 by a material scientist and orthopedic surgeon to develop an advanced ceramic for use in the human body. SINTX entered the spine market in 2007 when it obtained the first FDA approval on its implantable device. The company believes it is the first and only manufacturer to use silicon nitride in medical applications.

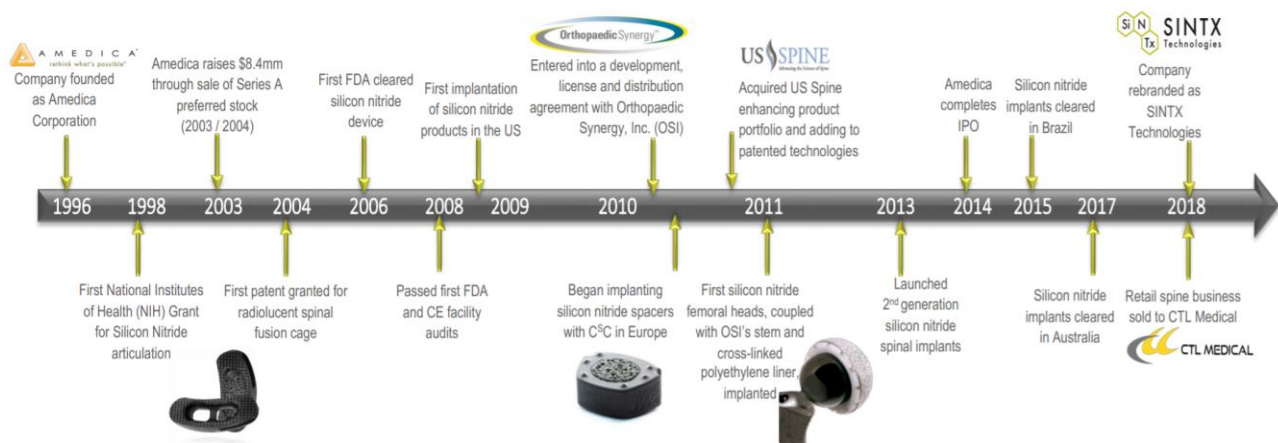
Originally founded as Amedica, the company changed its name to SINTX Technologies in October 2018 when it sold its legacy silicon nitride spine implant business. Prior to the sale, SINTX designed, manufactured, and commercialized silicon nitride products for the spine implant market. Over 33,000 of its silicon nitride spinal implants have been implanted into patients. SINTX sold this business to CTL Medical (now known as CTL-Amedica) and now manufacture silicon nitride spine implants for CTL. CTL is now the owner of SINTX’s portfolio of metal and silicon nitride spine products (sold under the brand names of Taurus, Preference, and Valeo). Manufacturing, research & development, and all intellectual property related to the core, non-spine, biomaterial technology of silicon nitride remains with SINTX.

The sale of its spine implant business to CTL enables SINTX to focus on its core competencies, the research and development of silicon nitride and the design and manufacture of medical and non-medical products manufactured from silicon nitride and other ceramic materials in collaboration with medical/non-medical products manufacturers.

The company’s current revenue is from the manufacture and sale of spinal fusion products, used in the treatment of spine disorders, to CTL Medical, whom SINTX has a 10-year exclusive sales agreement as its provider of silicon nitride products. SINTX sells almost exclusively in the United States. The company had its IPO in 2014. SINTX operates a 30,000 square foot manufacturing facility at its corporate headquarters in Salt Lake City. As of February 2019, SINTX had 19 employees.

### Exhibit 6: SINTX Company History

## SINTX Company History



Source: Company reports.



## Exhibit 7: SINTX's Management Team



**B. Sonny Bal, MD, JD, MBA, Ph.D**

*Chairman of the Board  
Chief Executive Officer  
President  
Principal Financial Officer*

- Orthopedic Surgeon, Attorney
- Ceramic Scientist and Investigator
- CEO since 2014, Board since 2012



**Bryan J. McEntire, MBA, Ph.D**

*Chief Scientific Officer*

- 35 years research in advanced ceramics
- Senior roles in ceramics and materials companies



**David O'Brien**

*Vice President / General Manager*

- 30 years of operations, manufacturing, and engineering experience with medical devices and ceramics



**Donald Bray**

*Vice President Business Development*

- Extensive background and experience in technical ceramics and business development
- Proven track record of securing federal, state, and local funds in support of technology development

Source: Company reports.

## SILICON NITRIDE PRODUCTS

The core strength of SINTX is the manufacturing, research, and development of silicon nitride ceramics for external partners. The company believes that silicon nitride has a superb combination of properties that make it ideally suited for long-term human implantation. Other biomaterials are based on bone grafts, metal alloys, and polymers; all of which have well-known practical limitations and disadvantages. Silicon nitride has stronger material performance in demanding and extreme industrial environments.

As a human implant material, silicon nitride offers bone ingrowth, resistance to bacterial and viral infection, ease of diagnostic imaging, resistance to corrosion, superior strength, and fracture resistance. SINTX's versatile silicon nitride manufacturing expertise positions the company to introduce new and innovative devices in the medical and non-medical fields.

SINTX also believe that it is the first and only company to commercialize silicon nitride medical implants. Spine implant products manufactured by SINTX from silicon nitride are currently marketed and sold by CTL Medical (under the Valeo brand) to surgeons and hospitals in the United States and to selected markets in Europe and South America. These implants are designed for use in cervical (neck) and thoracolumbar (lower back) spine surgery.

Prior to October 2018, SINTX designed, manufactured, and commercialized silicon nitride products for the spine implant market. In October 2018, SINTX sold its spine implant business to CTL Medical and now manufactures silicon nitride spine implants for CTL. SINTX previously had received 510(k) regulatory clearance in the United States, a CE mark in Europe, ANVISA approval in Brazil, and ARTG and Prostheses approvals in Australia for a number of silicon nitride spine implant products designed for spinal fusion surgery.

The sale of its spine implant business enables SINTX to focus on its core competencies, the research and development of silicon nitride and the design and manufacture of medical and nonmedical products manufactured from silicon nitride and other ceramic materials in collaboration with medical/non-medical products manufacturers. SINTX is targeting original equipment manufacturer

(OEM) including CTL Medical, and private label partnerships in order to accelerate adoption of silicon nitride in potential markets such as coating products with silicon nitride, hip and knee replacements, dental and maxillofacial implants, extremities, trauma, and sports medicine.

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## Exhibit 8: SINTX Products Goal

### Our Vision

**Leverage our expertise and knowledge in advanced ceramics towards customer-focused solutions.**

### Our Products

**In 2008, the FDA cleared implantation of our spine fusion implants made of silicon nitride ceramic.**



Source: Company reports.

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Biomaterials are natural or synthetic biocompatible materials that are used in virtually every medical specialty to improve or preserve body functionality. Various types of biomaterials are used as essential components in medical devices, drug delivery systems, replacement and tissue repair technologies, prostheses, and diagnostic technologies.

There are four general categories of biomaterials:

- 1) **Ceramics.** Ceramics are hard, non-metallic, non-corrosive, heat-resistant materials made by shaping and then applying high temperatures. Traditional ceramics commonly used as biomaterials include carbon, oxides of aluminum, zirconium and titanium, calcium phosphate and zirconia-toughened alumina. Examples of medical uses of ceramics include repair, augmentation or stabilization of fractured bones, bone and joint replacements, spinal fusion devices, dental implants and restorations, heart valves and surgical instruments.
- 2) **Metals.** Metals commonly used as biomaterials include titanium, stainless steel, cobalt, chrome, gold, silver and platinum, and alloys of these metals. Examples of medical uses of metals include the repair or stabilization of fractured bones, stents, surgical instruments, bone and joint replacements, spinal fusion devices, dental implants and restorations and heart valves.
- 3) **Natural biomaterials.** Natural biomaterials are derived from human donors, animal or plant sources and include human bone, collagen, gelatin, cellulose, chitin, alginate and hyaluronic acid. Examples of medical uses of natural biomaterials include the addition or substitution of hard and soft tissue, cornea protectors, vascular grafts, repair and replacement of tendons and ligaments, bone and joint replacements, spinal fusion devices, dental restorations and heart valves.

- 4) **Polymers.** Polymers are synthetic compounds consisting of similar molecules linked together that can be created to have specific properties. Polymers commonly used as biomaterials include nylon, silicon rubber, polyester, polyethylene, cross-linked polyethylene (a stronger version), polymethyl methacrylate (PMMA), polyvinyl chloride, and polyether ether ketone (commonly referred to as PEEK). Examples of medical uses of polymers include soft-tissue replacement, sutures, drug delivery systems, joint replacements, spinal fusion devices, and dental restorations.

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## Exhibit 9: Silicon Nitride Properties

# Properties of Silicon Nitride

*Advanced ceramic with clinical advantages:*

- Faster Bone Fusion
  - Favorable surface topography and chemistry
  - Enhances cell response for faster bone fusion
- Antibacterial Properties
  - Innate surface chemistry
  - A multi-factorial etiology
  - Replicated in multiple studies
- Superior Imaging
  - Easy to see on x-ray, CT, and MRI
  - No image distortion



Source: Company reports.

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SINTX's core asset is its Silicon Nitride Technology Platform. SINTX believes it has the only FDA-cleared and ISO 13485 certified silicon nitride medical device manufacturing facility in the world, and is the only provider of structural ceramics-based medical devices used for spinal fusion applications. Silicon nitride is a chemical compound comprised of the elements Silicon and Nitrogen. Silicon nitride, an advanced ceramic, is lightweight, resistant to fracture and strong, and is used in many demanding mechanical, thermal and wear applications, such as in space shuttle bearings, jet engine components and body armor.

Exhibit 10: Silicon Nitride Products

## Versatility: Shapes and Compositions

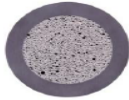
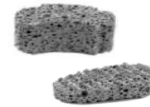


### Solid: As-Fired and Polished

**As-fired** promotes bone growth  
**Polished** used for articulating applications

### Porous: Cancellous (CsC)

Biologic substitute for bone in-growth



### Composite: Cortico-Cancellous

Synthetic bone for a variety of medical applications

### Composite: Articular-Bone Ingrowth

Joint arthroplasty/resurfacing applications



### Technologies Under Development

- Coatings
- Composite PEEK / Silicon Nitride
- Brazed devices
- Modified Silicon Nitride compositions with improved bioactivity



Source: Company reports.

Silicon nitride is ideal as an implant material and is superior to other biomaterials currently used in the market such as PEEK, allograft and autograft bone, metal and traditional oxide ceramics. Key favorable characteristics of silicon nitride include:

- **Promotes Bone Growth:** SINTX's silicon nitride has an inherent surface chemistry that favors bone formation and healing, much more than PEEK and metals. The surface topography provides scaffolding for new bone growth. As a hydrophilic material, silicon nitride attracts protein cells and nutrients that stimulate osteoprogenitor cells to differentiate into osteoblasts, which are needed for optimal bone growth environments.
- **Antibacterial:** It has been demonstrated in studies that silicon nitride has inherent surface antibacterial properties, which reduce the risk of bacterial infection and biofilm in and around a silicon nitride device. PEEK, traditional ceramics, metals and bone do not have this bacterial resistance. In various studies, live bacteria counts were between 8 and 30 times lower on silicon nitride than PEEK and up to 8 times lower than titanium. Additionally, silicon nitride is synthetic and, therefore, there is a lower risk of disease transmission through cross-contamination or of an adverse auto-immune response.

- Antiviral:** Recent data have shown that silicon nitride surfaces are effective against several types of viruses. With surface-contact transmission of viral pathogens, particularly influenza, and the increasing use of consumer touchscreens in various retail industries, SINTX believes that its material has value to OEM partners focused on consumer glass-based surface coatings and treatments.
- Antifungal:** SINTX has conducted preliminary studies which suggest that its silicon nitride may be effective against fungal microbes. Plant-based viruses, bacteria, and fungi affect some 15% of the world’s edible crops. The mycotoxins produced by these plant fungi have an overall negative impact on human health and longevity. The inorganic nature of silicon nitride may prove to be more beneficial than the use of petrochemical or organometallic fungicides which are known to have residual effects in soil, on plants, and in fruit.

### Exhibit 11: Silicon Nitride Comparisons

Comparison of Mechanical Properties Among Orthopedic Biomaterials

| Material                                 | Hardness (GPa)(1) | Strength (MPa)(1) | Fracture Resistance (MPam <sup>1/2</sup> )(1) |
|--|-------------------|-------------------|---|
| Silicon Nitride                          | 13 – 16           | 800 – 1200        | 8 – 11  |
| Aluminum Oxide Ceramic                   | 14 – 19           | 300 – 500         | 3 – 5   |
| Zirconia-Toughened Alumina Ceramic       | 12 – 19           | 700 – 1150        | 5 – 10  |
| PEEK                                     | 0.09 – 0.28       | 160 – 180         | 2 – 3   |
| Highly-Cross-Linked Polyethylene Polymer | 0.03 – 0.07       | 22 – 48           | 1 – 2   |
| Cobalt-Chromium Metal                    | 3 – 4             | 700 – 1000        | 50 – 100                                      |
| Titanium Alloy Metal                     | 3 – 4             | 920 – 980         | 75  |

(1) GPa is a giga-pascal. Pascals are a measure of pressure. MPam<sup>1/2</sup> is mega-pascal times a square root meter and is a measure related to the energy required to initiate fracture of a material.

|                                | PEEK | Titanium | Silicon Nitride |
|--------------------------------|------|----------|-----------------|
| Increased bone formation       |      | ✓        | ✓               |
| Artifact-free imaging          | *    |          | ✓               |
| Antimicrobial properties**     |      |          | ✓               |
| Hydrophilic                    |      | ✓        | ✓               |
| Increased protein adsorption** |      |          | ✓               |
| Mechanical Strength            |      | ✓        | ✓               |

\*Artifact produced by tantalum markers.  
 \*\*Results are based on invitro and animal studies.

Source: Company reports.

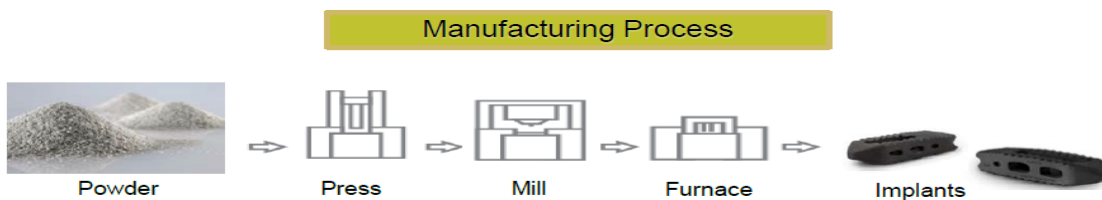
- Imaging Compatible:** SINTX silicon nitride interbody spinal fusion devices are semi-radiolucent, clearly visible in X-rays, and produce no distortion under MRI and no scattering under CT. These characteristics enable an exact view of the device for precise intra-operative placement and post-operative bone fusion assessment in spinal fusion procedures.

- **Hard, Strong and Resistant to Fracture:** SINTX silicon nitride is hard, strong, and possesses superior resistance to fracture over traditional ceramics and greater strength than polymers currently on the market. For example, silicon nitride's flexural strength is more than five times that of PEEK and its compressive strength is over twenty times that of PEEK.
- **Resistant to Wear:** SINTX believes its silicon nitride joint implant product candidates could have higher resistance to wear than metal-on-cross-linked polyethylene and traditional oxide ceramic-on-cross-linked polyethylene joint implants, the two most commonly used total hip replacement implants.
- **Non-Corrosive:** SINTX silicon nitride does not have the drawbacks associated with the corrosive nature of metal within the body, including metal sensitivity and metallosis, nor does it result in the release of metal ions into the body. As a result, SINTX believes its silicon nitride products will have lower revision rates and fewer complications than comparable metal and traditional oxide ceramic products.

## Exhibit 12: SINTX Manufacturing

# Cost Efficient Manufacturing

- 30,000 sq. ft. manufacturing and distribution facility in Salt Lake City, UT
  - We believe we are the only FDA & CE cleared  $\text{Si}_3\text{N}_4$  medical device manufacturing facility
  - Vertically integrated for rapid prototyping and development
  - Dedicated R&D and Product Development laboratories
- Production of powder and green compact preparation
- **Cost-competitive complex designs and shapes**
- Rigorous quality control process for each implant



Source: Company reports.

SINTX operates a 30,000 square foot FDA Registered and ISO 13485 certified medical device manufacturing facility. This allows the company to control the quality, cost, and availability of its silicon nitride products. The plant is equipped with powder processing, spray drying, pressing and computerized machining equipment, sintering furnaces, and other testing equipment that enables SINTX to control the entire manufacturing process for its silicon nitride products and product candidates. All operations with the exceptions of raw material production, cleaning, packaging and sterilization are performed in-house.

The chemical composition of SINTX's in-house formulation of silicon nitride and its processing and manufacturing experience allow it to produce silicon nitride in four distinct forms. This capability provides SINTX with the ability to utilize its silicon nitride biomaterial in a variety of ways depending on the intended application, which, together with silicon nitride's key characteristics, distinguishes SINTX from manufacturers of products using other biomaterials.



## FINANCIALS

SINTX's fiscal year ends on December 31. We expect its next earnings report (for Q3 (ending September) 2019) to be in mid-November. Because the company is still early in product commercialization as a biomaterial development company, it currently generates low revenues and significant losses. In July 2019, the company had a 1-for-30 reverse stock split of its common stock.

### Exhibit 13: SINTX's Historical Financials

| FYE Dec 31                                |           |           |          |          |
|---|-----------|-----------|----------|----------|
| (in millions except EPS)                  | 2017A     | 2018A     | 2019E    | 2020E    |
| <b>Total Revenue</b>                      | -         | 0.1       | 0.8      | 2.0      |
| Growth % (y/y)                            |           | #DIV/0!   | 742%     | 150%     |
| <b>Operating income (loss)</b>            | (7.5)     | (13.1)    | (6.3)    | (5.8)    |
| <b>Net income (pro forma)</b>             | (5.8)     | (9.7)     | (5.4)    | (5.8)    |
| <b>EPS</b>                                | \$(58.02) | \$(26.57) | \$(3.78) | \$(2.53) |
| <b>Cashflow from operating activities</b> | (4.7)     | (9.3)     | (5.4)    | (4.4)    |

Source: Company reports and Ascendant Capital Markets estimates.

### Recent Results (fiscal Q2 ending June 2019)

SINTX's recent financial performance is reflective of its early product development and commercialization stage. In its Q2 2019 report (as filed in its 10-Q on August 14, 2019), the company reported revenue of \$0.2 million (vs. \$0 y-o-y). Operating expenses were \$1.6 million, mainly due to research and development, and general and administrative expenses. Q2 pro forma net loss was \$0.7 million and EPS was \$(0.78).

SINTX's current revenue is primarily from the manufacture and sale of spinal fusion products, used in the treatment of spine disorders, to CTL Medical, with whom it has a 10-year exclusive sales agreement in place. SINTX is currently pursuing other sales opportunities for silicon nitride products outside spinal fusion applications.

The company does not provide specific quarterly financial guidance. However, it did state that it expects "multiple revenue sources in the future". We believe Q2's operating expenses of ~\$1.5 million is a reasonable near term quarterly rate, so if the company can expand revenue opportunities then rapid revenue increases should drive operating leverage and improving margins.

For 2019, we expect revenues of \$0.8 million (vs. \$0.1 million y-o-y) and EPS of \$(3.78). For 2020, we expect revenues of \$2.0 million (+150% y-o-y) and EPS of \$(2.53).

In October 2018, the company completed the sale of its spine business to CTL Medical for \$8.5 million. The sale included a \$6 million 4.5 years non-interest bearing note receivable and the assumption of \$2.5 million in debt. All prior historical results have been adjusted to reflect the sale of this business.

We believe that the biggest potential variable and challenge to our financial model is the ability of the company to successfully develop and commercialize new silicon nitride products. Because its current revenue from sales to CTL Medical are low (and its only source of revenue), the company's growth is dependent on finding new OEM manufacturing partners to develop and sell silicon nitride products.

If the company can make significant progress towards these goals, then revenue and earnings will likely be able to grow significantly (though likely still several years away before reaching sustained profitability). However, if the company has difficulties in making progress towards development and commercialization, then revenue and earnings will likely grow at a low rate or even not at all. Investors will be focused on the key milestones expected this year, including pursuing growth in sales to CTL as well as developing and commercializing new medical and non-medical silicon nitride products.

The company's balance sheet had ~\$3 million in cash (not counting the ~\$4 million note receivable from CTL) and no debt as of June 2019. We believe SINTX has enough cash to fund its operations through this year, but we estimate that it will need to raise capital next year (estimated Q1 2020). The company does have an ATM equity distribution agreement in place, but has not had a significant capital raise since May 2018 (when it raised ~\$15 million).

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#### Exhibit 14: SINTX's Key Financial Metrics

|                                   |                |
|-----------------------------------|----------------|
| Recent Share Price (9/10/19)      | \$ 1.45        |
| 52-Weeks Share Price (Low - High) | \$1.25 - 12.60 |
| Shares Outstanding                | 1.9 million    |
| Market Capitalization             | \$3 million    |
| Enterprise Value                  | \$0 million    |
| Cash (6/30/19)                    | \$3 million    |
| Debt (6/30/19)                    | \$0 million    |
| 2018A Net loss (pro forma)        | \$10 million   |
| 2018A EPS                         | \$ (26.57)     |
| 2019E Net loss (pro forma)        | \$5 million    |
| 2019E EPS                         | \$ (3.78)      |

Source: Company reports and Ascendant Capital Markets estimates.

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## FINANCIAL MODEL

### SINTX Technologies, Inc.

| Income Statement (\$ mils)       | 2017           | Mar-18         | Jun-18         | Sep-18         | Dec-18         | 2018            | Mar-19         | Jun-19         | Sep-19         | Dec-19         | 2019           | Mar-20         | Jun-20         | Sep-20         | Dec-20         | 2020           |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Fiscal Year End: December 31     | FY-A           | Q1A            | Q2A            | Q3A            | Q4A            | FY-A            | Q1A            | Q2A            | Q3E            | Q4E            | FY-E           | Q1E            | Q2E            | Q3E            | Q4E            | FY-E           |
| <b>Total Revenue</b>             | <b>0.000</b>   | <b>0.000</b>   | <b>0.000</b>   | <b>0.000</b>   | <b>0.095</b>   | <b>0.095</b>    | <b>0.097</b>   | <b>0.167</b>   | <b>0.236</b>   | <b>0.300</b>   | <b>0.800</b>   | <b>0.350</b>   | <b>0.450</b>   | <b>0.550</b>   | <b>0.650</b>   | <b>2.000</b>   |
| Cost of Revenues                 | 0.000          | 0.000          | 0.000          | 0.000          | 0.056          | 0.056           | 0.079          | 0.133          | 0.189          | 0.240          | 0.641          | 0.280          | 0.360          | 0.440          | 0.520          | 1.600          |
| Gross Profit                     | 0.000          | 0.000          | 0.000          | 0.000          | 0.039          | 0.039           | 0.018          | 0.034          | 0.047          | 0.060          | 0.159          | 0.070          | 0.090          | 0.110          | 0.130          | 0.400          |
| Research and development         | 3.506          | 0.877          | 0.956          | 0.549          | 0.609          | 2.991           | 0.718          | 0.836          | 0.836          | 0.836          | 3.226          | 0.836          | 0.836          | 0.836          | 0.836          | 3.344          |
| Sales and marketing              | 0.325          | 0.047          | 0.011          | 0.000          | 0.077          | 0.135           | 0.059          | 0.105          | 0.105          | 0.105          | 0.374          | 0.105          | 0.105          | 0.105          | 0.105          | 0.420          |
| General and administrative       | 3.654          | 1.307          | 0.935          | 0.654          | 0.970          | 3.866           | 0.971          | 0.615          | 0.615          | 0.615          | 2.816          | 0.615          | 0.615          | 0.615          | 0.615          | 2.460          |
| Restructuring and other          |                |                |                | 6.162          | 0.001          | 6.163           |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Total operating expenses         | 7.485          | 2.231          | 1.902          | 7.365          | 1.657          | 13.155          | 1.748          | 1.556          | 1.556          | 1.556          | 6.416          | 1.556          | 1.556          | 1.556          | 1.556          | 6.224          |
| <b>Operating income (loss)</b>   | <b>(7.485)</b> | <b>(2.231)</b> | <b>(1.902)</b> | <b>(7.365)</b> | <b>(1.618)</b> | <b>(13.116)</b> | <b>(1.730)</b> | <b>(1.522)</b> | <b>(1.509)</b> | <b>(1.496)</b> | <b>(6.257)</b> | <b>(1.486)</b> | <b>(1.466)</b> | <b>(1.446)</b> | <b>(1.426)</b> | <b>(5.824)</b> |
| Interest income (expense)        | (1.263)        | (0.476)        | (0.809)        | (0.083)        | (0.359)        | (1.727)         | 0.122          | 0.113          | 0.004          | 0.002          | 0.241          | 0.001          | (0.001)        | (0.002)        | (0.003)        | (0.005)        |
| Other income (expense)           | (0.581)        | (0.701)        | (6.935)        | (3.440)        | 3.367          | (7.709)         | (0.021)        | (1.679)        | 0.000          | 0.000          | (1.700)        | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| Income before income taxes       | (9.329)        | (3.408)        | (9.646)        | (10.888)       | 1.390          | (22.552)        | (1.629)        | (3.088)        | (1.505)        | (1.494)        | (7.715)        | (1.485)        | (1.467)        | (1.448)        | (1.429)        | (5.829)        |
| Income taxes                     | 0.000          | 0.000          |                |                |                | 0.000           | 0.000          |                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| Net income (loss)                | (9.329)        | (3.408)        | (9.646)        | (10.888)       | 1.390          | (22.552)        | (1.629)        | (3.088)        | (1.505)        | (1.494)        | (7.715)        | (1.485)        | (1.467)        | (1.448)        | (1.429)        | (5.829)        |
| Nonrecurring/noncash adjustments | 3.568          | (0.078)        | 7.465          | 7.921          | (2.445)        | 12.863          | 0.000          | 2.358          |                |                | 2.358          |                |                |                |                | 0.000          |
| <b>Net income (pro forma)</b>    | <b>(5.761)</b> | <b>(3.486)</b> | <b>(2.181)</b> | <b>(2.967)</b> | <b>(1.055)</b> | <b>(9.689)</b>  | <b>(1.629)</b> | <b>(0.730)</b> | <b>(1.505)</b> | <b>(1.494)</b> | <b>(5.357)</b> | <b>(1.485)</b> | <b>(1.467)</b> | <b>(1.448)</b> | <b>(1.429)</b> | <b>(5.829)</b> |
| EBITDA                           |                |                |                |                |                |                 |                |                |                |                |                |                |                |                |                |                |
| Shares, Basic                    | 0.099          | 0.114          | 0.195          | 0.419          | 0.726          | 0.365           | 0.726          | 0.932          | 1.958          | 2.058          | 1.419          | 2.158          | 2.258          | 2.358          | 2.458          | 2.308          |
| Shares, Diluted                  | 0.099          | 0.114          | 0.314          | 0.419          | 0.726          | 0.384           | 0.726          | 0.932          | 1.958          | 2.058          | 1.419          | 2.158          | 2.258          | 2.358          | 2.458          | 2.308          |
| EPS Basic (pro forma)            | (\$58.02)      | (\$30.66)      | (\$11.19)      | (\$7.09)       | (\$1.45)       | (\$26.57)       | (\$2.24)       | (\$0.78)       | (\$0.77)       | (\$0.73)       | (\$3.78)       | (\$0.69)       | (\$0.65)       | (\$0.61)       | (\$0.58)       | (\$2.53)       |
| EPS Diluted (pro forma)          | (\$58.02)      | (\$30.66)      | (\$6.94)       | (\$7.09)       | (\$1.45)       | (\$25.24)       | (\$2.24)       | (\$0.78)       | (\$0.77)       | (\$0.73)       | (\$3.78)       | (\$0.69)       | (\$0.65)       | (\$0.61)       | (\$0.58)       | (\$2.53)       |
| <b>Margins</b>                   |                |                |                |                |                |                 |                |                |                |                |                |                |                |                |                |                |
| Gross margin                     | NM             | NM             | NM             | NM             | 41%            | 41%             | 19%            | 20%            | 20%            | 20%            | 20%            | 20%            | 20%            | 20%            | 20%            | 20%            |
| Research and development         | NM             | NM             | NM             | NM             | 641%           | 3148%           | 740%           | 501%           | 354%           | 279%           | 403%           | 239%           | 186%           | 152%           | 129%           | 167%           |
| Sales and marketing              | NM             | NM             | NM             | NM             | 81%            | 142%            | 61%            | 63%            | 44%            | 35%            | 47%            | 30%            | 23%            | 19%            | 16%            | 21%            |
| General and administrative       | NM             | NM             | NM             | NM             | 1021%          | 4069%           | 1001%          | 368%           | 261%           | 205%           | 352%           | 176%           | 137%           | 112%           | 95%            | 123%           |
| Operating margin                 | NM             | NM             | NM             | NM             | -1703%         | -13806%         | -1784%         | -911%          | -639%          | -499%          | -782%          | -425%          | -326%          | -263%          | -219%          | -291%          |
| Tax rate, GAAP                   | 0%             | 0%             | 0%             | 0%             | 0%             | 0%              | 0%             | 0%             | 0%             | 0%             | 0%             | 0%             | 0%             | 0%             | 0%             | 0%             |
| Net margin                       | NM             | NM             | NM             | NM             | 1463%          | -23739%         | -1679%         | -1849%         | -638%          | -498%          | -964%          | -424%          | -326%          | -263%          | -220%          | -291%          |
| <b>Y/Y % change</b>              |                |                |                |                |                |                 |                |                |                |                |                |                |                |                |                |                |
| Total Revenue                    |                |                |                |                |                | #DIV/0!         | #DIV/0!        | #DIV/0!        | #DIV/0!        | 216%           | 742%           | 261%           | 169%           | 133%           | 117%           | 150%           |
| Gross margin                     |                |                |                |                |                | #DIV/0!         | #DIV/0!        | #DIV/0!        | #DIV/0!        | 54%            | 308%           | 289%           | 165%           | 133%           | 117%           | 151%           |
| Research and development         |                |                |                |                |                | -15%            | -18%           | -13%           | 52%            | 37%            | 8%             | 16%            | 0%             | 0%             | 0%             | 4%             |
| Sales and marketing              |                |                |                |                |                | -58%            | 26%            | 855%           | #DIV/0!        | 36%            | 177%           | 78%            | 0%             | 0%             | 0%             | 12%            |
| General and administrative       |                |                |                |                |                | 6%              | -26%           | -34%           | -6%            | -37%           | -27%           | -37%           | 0%             | 0%             | 0%             | -13%           |
| Operating income (loss)          |                |                |                |                |                | 75%             | -22%           | -20%           | -80%           | -8%            | -52%           | -14%           | -4%            | -4%            | -5%            | -7%            |
| Net income (loss)                |                |                |                |                |                | 142%            | -52%           | -68%           | -86%           | -207%          | -66%           | -9%            | -53%           | -4%            | -4%            | -24%           |
| EPS Diluted (pro forma)          |                |                |                |                |                | -56%            | -93%           | -89%           | -89%           | -50%           | -85%           | -69%           | -17%           | -20%           | -20%           | -33%           |

Source: Company reports and Ascendant Capital Markets estimates.

Reflects a 1:30 reverse stock split in July 2019

**SINTX Technologies, Inc.**

| Balance Sheet (\$ mils)                       | Dec-17        | Mar-18        | Jun-18        | Sep-18        | Dec-18        | Mar-19        | Jun-19        | Sep-19        | Dec-19       | Mar-20       | Jun-20       | Sep-20         | Dec-20         |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|----------------|----------------|
| Fiscal Year End: December 31                  | Q4A           | Q1A           | Q2A           | Q3A           | Q4A           | Q1A           | Q2A           | Q3E           | Q4E          | Q1E          | Q2E          | Q3E            | Q4E            |
| <b>Assets</b>                                 |               |               |               |               |               |               |               |               |              |              |              |                |                |
| Cash and cash equivalents                     | 0.539         | 0.409         | 8.835         | 6.793         | 5.447         | 4.164         | 3.192         | 1.955         | 0.710        | (0.578)      | (1.664)      | (2.730)        | (3.778)        |
| Short term investments                        |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| Accounts receivable, net                      | 1.240         | 1.571         | 1.204         | 1.201         | 0.263         | 0.045         | 0.173         | 0.244         | 0.310        | 0.362        | 0.465        | 0.568          | 0.672          |
| Inventory                                     | 1.241         | 1.231         | 1.237         | 0.817         | 0.052         | 0.069         | 0.085         | 0.121         | 0.154        | 0.179        | 0.230        | 0.282          | 0.333          |
| Deferred income taxes                         |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| Short-term note receivable                    |               |               |               |               | 1.084         | 1.116         | 1.399         | 1.399         | 1.399        | 1.399        | 1.399        | 1.399          | 1.399          |
| Prepaid expenses and other                    | 0.190         | 0.379         | 0.266         | 2.145         | 0.171         | 0.178         | 0.234         | 0.330         | 0.420        | 0.490        | 0.630        | 0.770          | 0.910          |
| <b>Total current assets</b>                   | <b>3.210</b>  | <b>3.590</b>  | <b>11.542</b> | <b>10.956</b> | <b>7.017</b>  | <b>5.572</b>  | <b>5.083</b>  | <b>4.049</b>  | <b>2.993</b> | <b>1.852</b> | <b>1.061</b> | <b>0.289</b>   | <b>(0.465)</b> |
| Property and equipment, net                   | 1.446         | 1.332         | 1.212         | 0.150         | 0.124         | 0.097         | 0.087         | 0.076         | 0.065        | 0.054        | 0.043        | 0.032          | 0.021          |
| Intangibles, net                              | 8.814         | 8.730         | 8.595         | 0.048         | 0.046         | 0.045         | 0.044         | 0.044         | 0.044        | 0.044        | 0.044        | 0.044          | 0.044          |
| Deferred income tax                           |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| Long-term note receivable                     |               |               |               |               | 3.669         | 3.343         | 2.897         | 2.897         | 2.897        | 2.897        | 2.897        | 2.897          | 2.897          |
| Long-term inventory and other                 | 1.171         | 1.165         | 1.258         | 3.243         | 0.659         | 1.200         | 3.166         | 3.166         | 3.166        | 3.166        | 3.166        | 3.166          | 3.166          |
| <b>Total assets</b>                           | <b>14.641</b> | <b>14.817</b> | <b>22.607</b> | <b>14.397</b> | <b>11.515</b> | <b>10.257</b> | <b>11.277</b> | <b>10.232</b> | <b>9.165</b> | <b>8.013</b> | <b>7.211</b> | <b>6.428</b>   | <b>5.663</b>   |
| <b>Liabilities and stockholders' equity</b>   |               |               |               |               |               |               |               |               |              |              |              |                |                |
| Accounts payable                              | 1.732         | 2.025         | 0.910         | 0.703         | 0.301         | 0.254         | 0.295         | 0.418         | 0.531        | 0.620        | 0.797        | 0.974          | 1.151          |
| Accrued expenses                              | 2.682         | 1.110         | 0.967         | 0.687         | 0.838         | 0.797         | 0.813         | 1.149         | 1.461        | 1.705        | 2.192        | 2.679          | 3.166          |
| Derivative liabilities                        | 0.896         | 0.301         | 6.061         | 1.566         | 1.062         | 1.088         | 0.454         | 0.454         | 0.454        | 0.454        | 0.454        | 0.454          | 0.454          |
| Deferred revenue                              |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| Deferred income tax                           |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| Other   |               |               |               | 2.500         | 0.179         | 0.733         | 0.610         | 0.610         | 0.610        | 0.610        | 0.610        | 0.610          | 0.610          |
| Short term debt                               | 2.961         | 4.513         | 2.479         |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| <b>Total current liabilities</b>              | <b>8.271</b>  | <b>7.949</b>  | <b>10.417</b> | <b>5.456</b>  | <b>2.380</b>  | <b>2.872</b>  | <b>2.172</b>  | <b>2.631</b>  | <b>3.056</b> | <b>3.388</b> | <b>4.052</b> | <b>4.716</b>   | <b>5.380</b>   |
| Deferred income taxes                         |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| Warrant liabilities                           | 0.461         | 0.457         | 0.500         | 0.505         | 0.504         | 0.500         | 0.502         | 0.502         | 0.502        | 0.502        | 0.502        | 0.502          | 0.502          |
| Other long term liabilities                   | 0.467         | 0.426         | 0.381         | 0.346         | 0.232         | 0.115         | 2.163         | 2.163         | 2.163        | 2.163        | 2.163        | 2.163          | 2.163          |
| Long term debt                                |               |               |               |               |               |               |               | 0.000         | 0.000        | 0.000        | 0.000        | 0.000          | 0.000          |
| <b>Total other liabilities</b>                | <b>0.928</b>  | <b>0.883</b>  | <b>0.881</b>  | <b>0.851</b>  | <b>0.736</b>  | <b>0.615</b>  | <b>2.665</b>  | <b>2.665</b>  | <b>2.665</b> | <b>2.665</b> | <b>2.665</b> | <b>2.665</b>   | <b>2.665</b>   |
| Preferred stock                               |               |               |               |               |               |               |               |               |              |              |              |                |                |
| Common stock                                  | 0.030         | 0.043         | 0.075         | 0.210         | 0.218         | 0.218         | 0.019         | 0.020         | 0.021        | 0.022        | 0.023        | 0.024          | 0.025          |
| Additional paid-in capital                    | 226.041       | 229.971       | 237.574       | 237.467       | 237.462       | 237.462       | 238.062       | 238.062       | 238.062      | 238.062      | 238.062      | 238.062        | 238.062        |
| Retained earnings                             | (220.629)     | (224.028)     | (226.340)     | (229.587)     | (229.281)     | (230.910)     | (231.641)     | (233.146)     | (234.639)    | (236.124)    | (237.591)    | (239.039)      | (240.469)      |
| Accumulated other comprehensive income        |               |               |               |               |               |               |               |               |              |              |              |                |                |
| Other   |               | (0.001)       |               |               |               |               |               |               |              |              |              |                |                |
| <b>Total stockholders' equity</b>             | <b>5.442</b>  | <b>5.985</b>  | <b>11.309</b> | <b>8.090</b>  | <b>8.399</b>  | <b>6.770</b>  | <b>6.440</b>  | <b>4.936</b>  | <b>3.444</b> | <b>1.960</b> | <b>0.494</b> | <b>(0.953)</b> | <b>(2.382)</b> |
| <b>Total stockholders' equity and liabili</b> | <b>14.641</b> | <b>14.817</b> | <b>22.607</b> | <b>14.397</b> | <b>11.515</b> | <b>10.257</b> | <b>11.277</b> | <b>10.232</b> | <b>9.165</b> | <b>8.013</b> | <b>7.211</b> | <b>6.428</b>   | <b>5.663</b>   |

**Balance Sheet Drivers**

|  | Dec-17   | Mar-18   | Jun-18  | Sep-18  | Dec-18  | Mar-19 | Jun-19 | Sep-19 | Dec-19 | Mar-20  | Jun-20  | Sep-20  | Dec-20  |
|--|----------|----------|---------|---------|---------|--------|--------|--------|--------|---------|---------|---------|---------|
|  | Q4A      | Q1A      | Q2A     | Q3A     | Q4A     | Q1A    | Q2A    | Q3E    | Q4E    | Q1E     | Q2E     | Q3E     | Q4E     |
| Prepaid as % of total rev                | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | 180%    | 184%   | 140%   | 140%   | 140%   | 140%    | 140%    | 140%    | 140%    |
| Accounts payable as % of total rev       | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | 317%    | 262%   | 177%   | 177%   | 177%   | 177%    | 177%    | 177%    | 177%    |
| Inventories as % of cost of rev          | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | 93%     | 87%    | 64%    | 64%    | 64%    | 64%     | 64%     | 64%     | 64%     |
| Accrued expenses as % of total rev       | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | 882%    | 822%   | 487%   | 487%   | 487%   | 487%    | 487%    | 487%    | 487%    |
| <b>Activity Ratios</b>                   |          |          |         |         |         |        |        |        |        |         |         |         |         |
| A/R Days Sales Outstanding               | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | 249     | 42     | 93     | 93     | 93     | 93      | 93      | 93      | 93      |
| Inventory Turnover                       | 0.0x     | 0.0x     | 0.0x    | 0.0x    | 4.3x    | 4.6x   | 6.3x   | 6.3x   | 6.3x   | 6.3x    | 6.3x    | 6.3x    | 6.3x    |
| A/P Days Payable                         | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | 484     | 289    | 200    | 199    | 199    | 199     | 199     | 199     | 199     |
| <b>Book &amp; Cash Value (per share)</b> |          |          |         |         |         |        |        |        |        |         |         |         |         |
| Book Value per Share (diluted)           | \$54.81  | \$52.63  | \$35.98 | \$19.32 | \$11.57 | \$9.32 | \$6.91 | \$2.52 | \$1.67 | \$0.91  | \$0.22  | -\$0.40 | -\$0.97 |
| Cash per Share (diluted)                 | \$5.43   | \$3.60   | \$28.11 | \$16.23 | \$7.50  | \$5.73 | \$3.43 | \$1.00 | \$0.35 | -\$0.27 | -\$0.74 | -\$1.16 | -\$1.54 |
| Net cash per Share (diluted)             | -\$24.39 | -\$36.09 | \$20.22 | \$16.23 | \$7.50  | \$5.73 | \$3.43 | \$1.00 | \$0.35 | -\$0.27 | -\$0.74 | -\$1.16 | -\$1.54 |

Source: Company reports and Ascendant Capital Markets estimates

**SINTX Technologies, Inc.**

| Cash Flow Statement (\$ mils)                | 2017           | Mar-18         | Jun-18         | Sep-18         | Dec-18         | 2018           | Mar-19         | Jun-19         | Sep-19         | Dec-19         | 2019           | Mar-20         | Jun-20         | Sep-20         | Dec-20         | 2020           |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Fiscal Year End: December 31                 | FY-A           | Q1A            | Q2A            | Q3A            | Q4A            | FY-A           | Q1A            | Q2A            | Q3E            | Q4E            | FY-E           | Q1E            | Q2E            | Q3E            | Q4E            | FY-E           |
| <b>Cash flow from operating activities</b>   |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Net income                                   | (5.761)        | (3.486)        | (2.180)        | (3.292)        | (0.731)        | (9.689)        | (1.629)        | (0.730)        | (1.505)        | (1.494)        | (5.357)        | (1.485)        | (1.467)        | (1.448)        | (1.429)        | (5.829)        |
| Depreciation                                 | 0.105          | 0.026          | 0.027          | 0.022          | 0.030          | 0.105          | 0.026          | 0.026          | 0.026          | 0.026          | 0.104          | 0.026          | 0.026          | 0.026          | 0.026          | 0.104          |
| Amortization                                 | 0.020          | 0.015          | 0.013          | (0.003)        | (0.021)        | 0.004          | 0.001          | 0.001          |                |                | 0.002          |                |                |                |                | 0.000          |
| Debt related amortization exper              | 0.726          | 0.688          | 0.365          | 0.243          | (0.087)        | 1.209          | 0.037          | (0.103)        |                |                | (0.066)        |                |                |                |                | 0.000          |
| Stock comp                                   | 0.219          | 0.024          | 0.010          | 0.006          | 0.002          | 0.042          | 0.001          | 0.001          | 0.001          | 0.001          | 0.003          | 0.001          | 0.001          | 0.001          | 0.001          | 0.004          |
| Bad debt expense                             |                |                |                |                |                | 0.000          | 0.084          | (0.075)        |                |                | 0.009          |                |                |                |                |                |
| Inventory reserve                            |                |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                |                |
| Deferred income taxes                        |                |                |                |                |                | 0.000          |                |                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| Change in fair value of warrant              | (3.118)        | 0.441          | (1.209)        | (4.480)        | (0.505)        | (5.753)        | 0.021          | (0.631)        |                |                | (0.610)        |                |                |                |                | 0.000          |
| Writedowns and impairments                   |                |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Other gains/losses                           |                |                | 0.051          | 6.165          | (0.053)        | 6.163          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Other  | 2.578          | 0.214          | (0.616)        | (0.704)        | 1.086          | (0.020)        |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Changes in operating assets and liabilities: |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Accounts receivable                          |                |                |                |                | (0.139)        | (0.139)        | 0.134          | (0.055)        | (0.071)        | (0.066)        | (0.058)        | (0.052)        | (0.103)        | (0.103)        | (0.103)        | (0.362)        |
| Inventory                                    |                |                |                |                | (0.008)        | (0.008)        | (0.057)        | 0.052          | (0.036)        | (0.033)        | (0.074)        | (0.026)        | (0.051)        | (0.051)        | (0.051)        | (0.179)        |
| Prepaid expenses & other curre               | 0.048          | (0.190)        | 0.114          | (0.170)        | 0.265          | 0.019          | (0.007)        | (0.056)        | (0.096)        | (0.090)        | (0.249)        | (0.070)        | (0.140)        | (0.140)        | (0.140)        | (0.490)        |
| Income tax                                   |                |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Other assets                                 |                |                |                |                |                | 0.000          |                |                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| Accounts payable                             | 0.503          | 0.186          | (0.427)        | 0.194          | (1.234)        | (1.281)        | (0.079)        | 0.060          | 0.123          | 0.113          | 0.217          | 0.088          | 0.177          | 0.177          | 0.177          | 0.620          |
| Accrued expenses                             |                |                |                |                |                | 0.000          |                |                | 0.336          | 0.312          | 0.648          | 0.244          | 0.487          | 0.487          | 0.487          | 1.705          |
| Deferred revenue                             |                |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Other liabilities                            |                |                |                |                |                | 0.000          |                |                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| <b>Net cash (used in) provided by</b>        | <b>(4.680)</b> | <b>(2.082)</b> | <b>(3.852)</b> | <b>(2.019)</b> | <b>(1.395)</b> | <b>(9.348)</b> | <b>(1.469)</b> | <b>(1.510)</b> | <b>(1.222)</b> | <b>(1.230)</b> | <b>(5.431)</b> | <b>(1.273)</b> | <b>(1.070)</b> | <b>(1.052)</b> | <b>(1.033)</b> | <b>(4.428)</b> |
| <b>Cash flow from investing activities</b>   |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Purchases of property and equi               | (0.006)        |                |                | (0.152)        | 0.141          | (0.011)        |                | (0.015)        | (0.015)        | (0.015)        | (0.045)        | (0.015)        | (0.015)        | (0.015)        | (0.015)        | (0.060)        |
| Purchases of short-term investments          |                |                |                |                |                | 0.000          | 0.416          | 0.279          |                |                | 0.695          |                |                |                |                | 0.000          |
| Acquisitions                                 |                | (0.050)        |                |                |                | (0.050)        |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Other  | (1.131)        | (0.031)        | (0.076)        | 0.115          | (0.092)        | (0.084)        |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| <b>Net cash used in investing activ</b>      | <b>(1.137)</b> | <b>(0.081)</b> | <b>(0.076)</b> | <b>(0.037)</b> | <b>0.049</b>   | <b>(0.145)</b> | <b>0.416</b>   | <b>0.264</b>   | <b>(0.015)</b> | <b>(0.015)</b> | <b>0.650</b>   | <b>(0.015)</b> | <b>(0.015)</b> | <b>(0.015)</b> | <b>(0.015)</b> | <b>(0.060)</b> |
| <b>Cash flow from financing activities</b>   |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Issuance of debt                             | 0.679          | 0.705          | 14.331         | (0.710)        |                | 14.326         |                |                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| Repayment of debt                            | (6.816)        |                | (2.282)        | 0.705          |                | (1.577)        | (0.230)        | (0.124)        |                |                | (0.354)        |                |                |                |                | 0.000          |
| Issuance of stock                            | 3.128          | 1.328          | 0.305          | 0.019          |                | 1.652          |                | 0.397          | 0.000          | 0.000          | 0.397          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000          |
| Proceeds from stock option exercises         |                |                |                |                |                | 0.000          |                | 0.001          |                |                | 0.001          |                |                |                |                | 0.000          |
| Other  | 2.450          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| Dividends and distributions                  |                |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| <b>Cash provided by (used in) fina</b>       | <b>(0.559)</b> | <b>2.033</b>   | <b>12.354</b>  | <b>0.014</b>   | <b>0.000</b>   | <b>14.401</b>  | <b>(0.230)</b> | <b>0.274</b>   | <b>0.000</b>   | <b>0.000</b>   | <b>0.044</b>   | <b>0.000</b>   | <b>0.000</b>   | <b>0.000</b>   | <b>0.000</b>   | <b>0.000</b>   |
| Effect of exchange rate on cash              |                |                |                |                |                | 0.000          |                |                |                |                | 0.000          |                |                |                |                | 0.000          |
| <b>Net increase (decrease) in cash</b>       | <b>(6.376)</b> | <b>(0.130)</b> | <b>8.426</b>   | <b>(2.042)</b> | <b>(1.346)</b> | <b>4.908</b>   | <b>(1.283)</b> | <b>(0.972)</b> | <b>(1.237)</b> | <b>(1.245)</b> | <b>(4.737)</b> | <b>(1.288)</b> | <b>(1.085)</b> | <b>(1.067)</b> | <b>(1.048)</b> | <b>(4.488)</b> |
| <b>Beginning cash and equivalents</b>        | <b>6.915</b>   | <b>0.539</b>   | <b>0.409</b>   | <b>8.835</b>   | <b>6.793</b>   | <b>0.539</b>   | <b>5.447</b>   | <b>4.164</b>   | <b>3.192</b>   | <b>1.955</b>   | <b>5.447</b>   | <b>0.710</b>   | <b>(0.578)</b> | <b>(1.664)</b> | <b>(2.730)</b> | <b>0.710</b>   |
| <b>Ending cash and equivalents</b>           | <b>0.539</b>   | <b>0.409</b>   | <b>8.835</b>   | <b>6.793</b>   | <b>5.447</b>   | <b>5.447</b>   | <b>4.164</b>   | <b>3.192</b>   | <b>1.955</b>   | <b>0.710</b>   | <b>0.710</b>   | <b>(0.578)</b> | <b>(1.664)</b> | <b>(2.730)</b> | <b>(3.778)</b> | <b>(3.778)</b> |

Source: Company reports and Ascendant Capital Markets estimates

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- Ascendant Capital Markets, LLC has received compensation for advisory or investment banking services from the company in the past 12 months.

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**BUY:** We expect the stock to provide a total return of 15% or more within a 12-month period.

**HOLD:** We expect the stock to provide a total return of negative 15% to positive 15% within a 12-month period.



**SELL:** We expect the stock to have a negative total return of more than 15% within a 12-month period.

Total return is defined as price appreciation plus dividend yield.

### Ascendant Capital Markets, LLC Rating System

*Prior to January 31, 2014, ASCM used the following rating system:*

**Strong Buy:** We expect the stock to provide a total return of 30% or more within a 12-month period.

**Buy:** We expect the stock to provide a total return of between 10% and 30% within a 12-month period.

**Neutral:** We expect the stock to provide a total return of between minus 10% and plus 10% within a 12-month period.

**Sell:** We expect the stock to provide a total return of minus 10% or worse within a 12-month period.

**Speculative Buy:** This rating is reserved for companies we believe have tremendous potential, but whose stocks are illiquid or whose equity market capitalizations are very small, often in the definition of a nano cap (below \$50 million in market cap). In general, for stocks ranked in this category, we expect the stock to provide a total return of 50% or more within a 12-month period. However, because of the illiquid nature of the stock's trading and/or the nano cap nature of the investment, we caution that these investments may not be suitable for all parties.

Total return is defined as price appreciation plus dividend yield.

### Ascendant Capital Markets, LLC Distribution of Investment Ratings (as of July 16, 2019)

| Rating | Count | Percent | Investment Banking Services<br>Past 12 months |         |
|--------|-------|---------|---|---------|
|        |       |         | Count   | Percent |
| Buy    | 37    | 93%     | 11  | 30%     |
| Hold   | 3     | 8%      | 1   | 33%     |
| Sell   | 0     | 0%      | 0   | 0%      |
| Total  | 40    | 100%    | 12  | 30%     |

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