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Oxford Performance Materials and SINTX Technologies Collaboration Yields Major Breakthrough in Orthopedic & Dental Coatings

Composite Coating of PEKK + Silicon Nitride Successfully Applied to Ti-Alloy Substrate; Product to Address Infection Risk, Metallosis, & Bone Integration

South Windsor, CT and Salt Lake City, UT, Aug. 23, 2022 (GLOBE NEWSWIRE) -- Oxford Performance Materials, Inc. (OPM; https://oxfordpm.com/), an industry leader in advanced polymer science 3D-printed orthopedic devices and coating technologies, and SINTX Technologies, Inc. (https://sintx.com/; NASDAQ: SINT), an original equipment manufacturer (OEM) of advanced ceramic materials for medical and technical applications, announced their successful development of a new class of orthopedic coatings. These coatings are targeted at overcoming the clinical limitations of metallic implants, some of which have come under increasing scientific and regulatory scrutiny worldwide (see e.g., Biological Responses to Metal Implants (FDA 2019)).

SINTX and OPM combined their respective expertise in polymer and ceramic material science to create a novel composite coating technology that can be applied to biomedical metallic substrates. Silicon nitride (chemical formula Si_3N_4) and polyetherketoneketone (PEKK) polymer are biomaterials that already have FDA clearance for human implantation. OPM and SINTX jointly developed a suspension of PEKK and submicron silicon nitride powder that can be applied to titanium, as well as other metallic substrates used in modern orthopedic and dental surgery. The suspension is then cured to form a tough and tenaciously adherent composite film less than one micron in thickness. Further testing is underway toward submission of the technology for regulatory approval. Under a licensing agreement in place, either company can enter royalty-bearing commercial agreements with mutually selected customers.

“We began our work with SINTX with the goal of addressing several well-recognized clinical shortcomings of metallic implants that are widely used in orthopedics, dentistry, and other kinds of reconstructive surgery. For example, metal implants are susceptible to bacterial infection; when this occurs, the implants usually require surgical removal with considerable cost and patient morbidity. Also, the potential harmful effects from long-term exposure to metal ions arising from surface corrosion and degradation of metal implants are of growing concern. Third, bone ingrowth into porous metal implants, while generally reliable, can be delayed such that healing between metal and bone can be impeded, thus impairing outcomes from surgery,” said Scott DeFelice, CEO of OPM. “We wanted to address these clinical concerns using well-accepted biomaterials, enabled by a highly novel, cost-effective, and patented process technology that entirely encapsulates metal implants in a sub-micron

layer of our PEKK polymer, enhanced with SINTX's silicon nitride."

SINTX's CEO Sonny Bal added: "Having practiced orthopedic surgery, I am familiar with the advantages and limitations of metal implants and gratified that we have developed a new technology with OPM to improve implant performance. Metal implants are well-accepted by surgeons because of the proven durability of titanium, stainless steel, and cobalt-chrome, as evidenced by decades of clinical data. The PEKK-silicon nitride composite coating is very exciting because it adds to the proven attributes of metal implants by imparting bacterial resistance, speeding up bone ingrowth, and reducing metal ion exposure in the body. In the next phase of our collaboration with OPM, we will optimize the coating process, apply the coating to complex device surfaces, conduct rigorous chemical and biological evaluations with clinically relevant bacterial strains and bone cells, and undertake standardized testing protocols toward securing regulatory clearances and product claims. Initial industry response to our new technology has been very encouraging, and we see wide applications for OEMs, hospitals, and clinicians who have an interest in preventing post-surgical infections and enhancing bone integration. Representative target areas for the new composite technology include implants used in trauma reconstruction, hip and knee replacements, spine fusion, sports medicine, and dentistry."

Unlike other technologies, the PEKK/Silicon Nitride composite coating does not rely upon the release of antibiotics or the presence of antibacterial materials, such as silver ions or peptides. Instead, the product leverages both passive and active surface mechanisms to discourage bacterial adhesion, while stimulating osteoblast cell interaction with bone. These properties are inherent to the biomaterials used and have been validated in a number of scientific findings and publications that have undergone rigorous peer review. In addition to testing protocols, the companies have begun initial application discussions with several orthopedic and dental OEM's who are interested in evaluating commercial applications of the composite product on titanium, stainless steel, and cobalt chrome substrates.

For more information, please visit https://oxfordpm.com/ and https://sintx.com/.

About Oxford Performance Materials, Inc.

Oxford Performance Materials, Inc. was founded in 2000 to exploit and commercialize the world's highest performing thermoplastic, PEKK (poly-ether-ketone-ketone). OPM's Materials business has developed a range of proprietary, patented technologies for the synthesis and modification of a range of PAEK polymers that are sold under its OXPEKK® brand, including coating technologies for a range of industrial and biomedical applications. OPM is a pioneer in 3D printing. OPM's OsteoFab® technology is in commercial production in numerous orthopedic implant applications, including cranial, facial, spinal, and sports medicine devices, and OPM's OXFAB® production parts are designed for highly demanding industrial applications.

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About SINTX Technologies, Inc.
SINTX Technologies is an advanced ceramics company that develops and commercializes materials, components, and technologies for medical and technical applications. SINTX is a global leader in the research, development, and manufacturing of silicon nitride, and its products have been implanted in humans since 2008. Over the past two years, SINTX has utilized strategic acquisitions and alliances to enter into new markets. The Company has manufacturing facilities in Utah and Maryland.

For more information on SINTX Technologies or its silicon nitride material platform, please visit https://sintx.com/.

Forward-Looking Statements for SINTX Technologies, Inc.
This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (PSLRA) that are subject to a number of risks and uncertainties. Risks and uncertainties that may cause such differences include, among other things: the collaboration with Oxford Performance Materials may not result in new and innovative products or an increase in revenue; the FDA may not clear any products for commercialization; the industry may not accept the new products or may turn to products they deem more effective or less expensive; patients may not realize the expected benefits of our products; volatility in the price of SINTX's common stock; the uncertainties inherent in new product development, including the cost and time required to commercialize such product(s); market acceptance of our products once commercialized; SINTX's ability to raise additional funding and other competitive developments. Readers are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date on which they are made and reflect management's current estimates, projections, expectations, and beliefs. There can be no assurance that any of the anticipated results will occur on a timely basis or at all due to certain risks and uncertainties, a discussion of which can be found in SINTX's Risk Factors disclosure in its Annual Report on Form 10-K, filed with the Securities and Exchange Commission (SEC) on March 25, 2022, and in SINTX's other filings with the SEC. SINTX disclaims any obligation to update any forward-looking statements. SINTX undertakes no obligation to publicly revise or update the forward-looking statements to reflect events or circumstances that arise after the date of this report.

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