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Sigma Labs PrintRite3D® Software Is Shown to Ensure Process Consistency and Product Quality in DARPA-Sponsored Open Manufacturing Program With Honeywell Aerospace

Research Study Validates Use of In-Process Quality Assurance in Metal Additive Manufacturing

Findings Help to Advance Widescale Industrialization of Metal Additive Manufacturing

SANTA FE, N.M., April 30, 2019 (GLOBE NEWSWIRE) -- Technology developed by Sigma Labs, Inc. (NASDAQ: SGLB) ("Sigma Labs" or the "Company"), a provider of quality assurance software under the PrintRite3D® brand, has been shown to ensure process consistency and product quality in metal additive manufacturing, according to a research study sponsored by the Defense Advanced Research Project Agency (DARPA) Open Manufacturing Program and conducted in tandem with Honeywell Aerospace at Honeywell's Advanced Manufacturing Engineering Center. Details of the study were recently published in the journal *Integrating Materials and Manufacturing Innovation*.

John Rice, CEO of Sigma Labs, said, "Obtaining this third-party validation of the value of PrintRite3D® in metal additive manufacturing is one of the company's most important milestones. Our six-year research with Honeywell and the DARPA Open Manufacturing Program specifically demonstrates that the analysis of the Thermal Emission Density (TED™) metric made possible by our technology can play a critical role in ensuring quality in industrial additive manufacturing of metal parts. DARPA's conclusion that Sigma's technology can be used as the compliance means for certifications and/or certification of components of 3D metal parts has, we believe, significant positive implications not only for Sigma, but for the industry as a whole, to advance the wide-scale industrialization of metal additive manufacturing. These findings further enhance the potential value to industry stakeholders of our technology, which will be exhibited at the Rapid + TCT additive manufacturing conference in Detroit next month."

The paper, titled "[LPBF \[Laser Powder Bed Fusion\] Right the First Time—the Right Mix Between Modeling and Experiments](#)," discusses the validation involved in manufacturing a challenging metal component. Sensors were used to develop TED™ as an in-process quality metric that could be used to monitor the quality of the component, with respect to porosity, as it was being built. The research paper concludes: "This work has demonstrated that a combination of physics-based modeling and experimental verification and validation can enable early-stage identification and elimination of potential problems. The build was directly

successful and component testing confirmed achievement of the targeted porosity, geometric accuracy, and mechanical strength of the printed material. It has shown that the qualification framework presented here can be used as the compliance means for certifications and/or certification of components.”

Sigma Labs initially contracted to work with Honeywell Aerospace in 2014 as part of DARPA’s Open Manufacturing Program, with the additional phase of the project awarded in 2016. DARPA created this program to lower the cost and speed of the delivery of high-quality manufactured goods with predictable performance. Specifically, the program’s goal is to develop an Integrated Computational Material Engineering framework to accurately predict the properties of metal components produced using additive manufacturing.

About Sigma Labs

Sigma Labs, Inc. is a provider of quality assurance software under the PrintRite3D® brand and a developer of advanced, in-process, non-destructive quality assurance software for commercial firms worldwide seeking productive solutions for advanced manufacturing. For more information please visit us at www.sigmalabsinc.com.

Forward-Looking Statements

This press release contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (which Sections were adopted as part of the Private Securities Litigation Reform Act of 1995). Statements preceded by, followed by or that otherwise include the words “believe,” “anticipate,” “estimate,” “expect,” “intend,” “plan,” “project,” “prospects,” “outlook,” and similar words or expressions, or future or conditional verbs such as “will,” “should,” “would,” “may,” and “could” are generally forward-looking in nature and not historical facts. These forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the Company’s actual results, performance or achievements to be materially different from any anticipated results, performance or achievements. The Company disclaims any intention to, and undertakes no obligation to, revise any forward-looking statements, whether as a result of new information, a future event, or otherwise. For additional risks and uncertainties that could impact the Company’s forward-looking statements, please see the Company’s Annual Report on Form 10-K (including but not limited to the discussion under “Risk Factors” therein) filed with the SEC on April 1, 2019 and which may be viewed at <http://www.sec.gov>.

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