PRESS RELEASE

sensXPERT Showcases Cutting-Edge Solutions at CAMX

- **"Free Material Characterization" on the occasion of CAMX Trade Fair in San Diego**

Munich, 25th July 2024 – NETZSCH Process Intelligence GmbH, known as sensXPERT, a Corporate Venture of NETZSCH Group and leader in advanced manufacturing control technologies, will participate in the CAMX trade fair at booth QQ34, showcasing their innovative sensXPERT Digital Mold technology. This solution enhances production efficiency and quality through real-time process monitoring and optimization. The CAMX, the Composites and Advanced Materials Expo – is the largest, most comprehensive composites and advanced materials event in North America and takes place from 10th to 12th September in San Diego.

The sensXPERT program during CAMX

Cornelia Beyer, managing director of sensXPERT will be open for meetings during the CAMX. Visitors to the sensXPERT booth can expect new customer success stories and insights into the advanced capabilities of the sensXPERT Digital Mold solution. In addition, companies can win a free material characterization.

How to win a Free Material Characterization

There are two ways to participate and win:

1. Companies that visit the sensXPERT booth at CAMX 2024 in San Diego (Booth No. QQ34) can put their business card in the draw pot
2. For those that are not joining CAMX, they can fill out this online registration form: https://www.sensxpert.com/free-material-characterization/

Through the sensXPERT material characterization, companies not only gain detailed insights into the production of their materials but also have the opportunity to improve the quality and efficiency of their manufacturing processes. The sensXPERT team will conduct up to 10 precise measurements using dielectric analysis, unveiling key processing parameters. In an initial online meeting, the sensXPERT team will collaborate with the winning company to define parameters and discuss production challenges. The material characterization journey concludes with an informative online presentation of the results.

The winner will be contacted on **Thursday, 26 September 2024.**

Analyzing material behavior data from dielectric measurements in the laboratory is the first step to optimizing plastics manufacturing processes in real time. Insights into curing behavior can be generated in this very controlled environment. However, only when implementing process data to the analysis, the team can determine the potential for reducing cycle times. This is due to the many influencing factors found in production like material aging, and temperature fluctuations that cannot be reproduced in a laboratory environment.

How companies can benefit from the sensXPERT solution

The automotive industry for example must cope with constant pressure to increase production efficiency. Therefore they cannot afford to have improper storage conditions and material aging, which can lead to reduced material workability, increased scrap rates, and disruptions in production flow. To prevent these negative aging effects, a leader in the automotive industry collaborated with sensXPERT to detect material aging in their processing of carbon fiber reinforced polymers..

Initial analyses of laboratory measurements by the automotive company did not reveal any systematic trends. However, the sensXPERT team discovered that the material's molecular mobility decreases with more storage days, and this decrease is less pronounced at lower storage temperatures.

The subsequent regression model training set the stage for in-mold anomaly detection. The combination of advanced modeling and real-time process monitoring holds significant potential for streamlining production and maximizing output.

sensXPERT's analysis resulted in successful regression model training, thus setting the stage for in-mold anomaly detection. The combination of advanced modeling and real-time process monitoring holds significant potential for streamlining production and maximizing output.

Further details on this customer success story can be found here: https://www.sensxpert.com/use-case/detecting-material-aging-automotive/

sensXPERT's activities in North America

A collaborative project between sensXPERT and the Advanced Technologies Lab for Aerospace Systems (ATLAS) at the National Institute for Aviation Research (NIAR) demonstrates efforts to optimize aerospace production. NIAR provides research, design, testing, certification, and training for the aviation and manufacturing industries, as well as government agencies, including the U.S. Department of Defense.

ATLAS, the Advanced Technologies Lab for Aerospace Systems is a multi-disciplinary manufacturing environment and engineering education program to prepare engineers and educators for the Factory of the Future and to aid the current workforce in seamlessly adapting to advancements in the workplace.

NIAR's mission is to enhance the university's research capabilities, offer applied learning opportunities for students, and support the aviation and manufacturing industries, while promoting innovation and prosperity for the community, region, and state.

As the optimization of the curing process for composite materials in aerospace applications remains challenging, the NIAR x sensXPERT project focuses on accurately tracking the curing behavior of pre-impregnated (prepreg) carbon fiber materials, which are commonly used in aerospace structures.

Prepreg materials are delivered with resin already integrated into the carbon fiber sheets but often in a partially uncured state. The NIAR research team uses sensXPERT to monitor the curing process of these prepreg materials, which are cured in an oven inside a vacuum bag. A key focus is tracking viscosity changes and the wet-out process, which determines how effectively the resin impregnates the carbon fibers.

This joint project has two main objectives:

1. First, the research team will evaluate the effectiveness of sensXPERT's dielectric curing monitoring technology compared to traditional rheometers, which are commonly used to measure viscosity.
2. Second, and crucial for the aerospace industry, this project aims to provide manufacturers with the data needed to optimize composite material production and obtain certification for their composite parts. Traditionally, curing cycles are based on generic material datasheets, regardless of specific part dimensions.

By capturing the precise curing behavior of each part, sensXPERT Digital Mold offers manufacturers additional data to present to certification authorities. This detailed data can help make a strong case for process-specific optimizations, enabling more efficient and lighter aircraft structures without compromising the safety standards set by regulatory bodies such as the FAA.

This project demonstrates how sensXPERT Digital Mold addresses a critical challenge in the aerospace industry. By providing comprehensive material and process data and facilitating process optimization, sensXPERT enables manufacturers to drive innovation and contribute to the development of the next generation of aircraft.

More information can be found here: https://www.sensxpert.com/blog/data-driven-optimizing-aerospace-composites/

About sensXPERT
sensXPERT is a leading provider of advanced technologies for process optimization of plastic components and offers tailored solutions for companies in various industries. With a dedicated team of experts and state-of-the-art technology, sensXPERT strives to revolutionize production processes and help its customers achieve their goals effectively. By utilizing advanced AI algorithms and state-of-the-art sensor technologies, sensXPERT enables precise and comprehensive material characterization in real-time. sensXPERT solutions also provide sustainable improvements in the production process for the following industries: Automotive, Aviation, Building & Construction, Renewable Energy, Electrical Applications, Military Defense, Consumer Goods, Electronics Encapsulation.

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Download of the press release and images here:
www.sensxpert.com/sensxpert-exhibits-at-camx-2024

Image 1: Cornelia Beyer, managing director of NETZSCH Process Intelligence GmbH, at the sensXPERT booth

Image 2: Join sensXPERT Technology by NETZSCH at CAMX 2024