

Onsite PV backsheet checks at the push of a button: trinamiX launches handheld NIR solution for fast material identification

10 May 2022 (Ludwigshafen, Germany) – trinamiX GmbH, a subsidiary of BASF SE, today announced the market launch of a novel solution for rapid onsite material analysis of Photovoltaic (PV) module encapsulations and backsheets. With trinamiX's Mobile Near-Infrared Spectroscopy Solution, customers now gain transparency about the materials built into those protective layers of PV modules. In a matter of seconds, trinamiX's handheld device provides users with relevant information about the identified material on their smartphone. This way, malfunctioning and poorly performing PV modules caused by material flaws in the protective layers can be either identified during regular checks at solar farms or reclaimed upon arrival as part of incoming quality controls.

During their operational lifetime, PV modules are subject to environmental stresses which vary depending on weather-related and local factors. Under these circumstances, polymeric materials as used in encapsulants and backsheets are the decisive parts ensuring the highest performance, protection, and safe operation of critical PV components inside the modules.

“The stability of the protective polymeric materials is key to achieve high reliability of the active PV components over the whole life cycle of a PV module. Yet manufacturers only reveal little information about the materials built into the PV modules,” explains Dr. Gabriele C. Eder, Senior Researcher at the Austrian research Institute for Chemistry and Technology (OFI). “Therefore, the non-destructive material identification of the polymeric components in PV modules is an important task, especially when module failures and degradation occur”.

After successfully launching various solutions in the field of material identification for the plastics and recycling industry, trinamiX teamed up with the Austrian Research Institute for Chemistry and Technology (OFI) and the Polymer Competence Center Leoben GmbH (PCCL) to develop an easy-to-use solution to address the transparency gap, benefitting customers across the entire PV industry.

“As a company that started with a team of researchers, we at trinamiX are convinced that viable solutions combine scientific expertise with profound market insights,” explains Adrian Vogel, Business Development Manager IR Sensing at trinamiX. “This is why we are particularly excited to have partnered with leading experts when it comes to material analysis, environmental simulation, and polymers. Together, we are contributing our fair share towards ensuring performance and reliability of PV modules in light of the strong expansion of Photovoltaic systems across the globe.”

Considering the rise of renewable energies, the benefits of on-the-spot material identification are not limited to maintenance and incoming controls. At the end of the lifetime, a sustainable approach demands efficient recycling concepts for PV modules. Knowledge about the underlying materials paves the way for proper sorting, enhancing the recycling value for the respective PV module components.

“From a recycling perspective, it is particularly important to identify fluorinated polymers that may be present in PV backsheet films,” explains Dr. Oreski, Head of the Sustainable Polymer Solutions division at the Polymer Competence Center Leoben (Austria). “The reason for this lies in the fact that those polymers require special waste treatment compared to conventional plastics.”

From May 11-13, trinamiX will showcase live demos of its newly launched solution at Intersolar Europe 2022. Visitors of the trade show in Munich are invited to visit trinamiX's booth 512 in hall A4.



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About trinamiX's Mobile Near-Infrared Spectroscopy Solutions

trinamiX's solution combines robust handheld hardware with intelligent data analysis and a mobile app. NIR spectroscopy is a proven technology that trinamiX has integrated into a portable format for on-site analysis. In doing so, trinamiX relies on cloud-based data processing, which ensures continuous development of the solution – there is no need to replace hardware. This allows trinamiX to continuously develop new applications and react flexibly to new challenges in the field of material identification – while working closely together with partners and customers. For more information about our applications, visit: trinamixsensing.com/pv-modules

About trinamiX

trinamiX GmbH develops cutting-edge biometric and mobile NIR spectroscopy solutions, which are used in both consumer electronics and industrial designs. The company's products enable humans and machines to better capture data with the goal of understanding the world around us. This results in improved decision making as well as stronger biometric security. trinamiX, based in Ludwigshafen (Germany), was founded in 2015 as a wholly owned subsidiary of BASF SE. The company employs over 200 people worldwide and holds more than 300 patents and patent applications.

About the Austrian Research Institute for chemistry and Technology (OFI)

As an independent testing and research institute, OFI accompanies innovation processes in the fields of materials technology & building renovation from the idea to market entry and beyond. OFI is the leading expert in materials technology with a focus on testing and certifying the reliability of materials - in the automotive industry as well as in the packaging and construction industries. OFI helps its customers bring new ideas to market and consolidate their products and developments.

About the Polymer Competence Center Leoben GmbH (PCCL)

The Polymer Competence Center Leoben GmbH (PCCL) is the leading Austrian "Center of Excellence" for cooperative research in the area of polymer engineering and sciences. Together with the polymer industry and in close cooperation with its scientific partners, more than 100 highly qualified employees of PCCL are active in the R&D-projects in a wide field of applications for plastics ranging from automotive and aircraft, to packaging and photovoltaic industries. For more information, visit: <https://www.pccl.at/en/>