

Vecoplan introduces the “Hotspot Monitoring” thermal imaging system

AI-Powered early fire detection for recycling facilities

Around 10,000 fires per year are recorded in German waste treatment facilities each year. And this figure is increasing. The main cause is improperly disposed-of lithium-ion batteries, which can ignite during the recycling process. Vecoplan is therefore expanding its portfolio to include “Hotspot Monitoring,” an AI-powered thermal imaging system that detects critical temperature events early on, before a hotspot develops into a fire.

Smartphones, power tools, e-cigarettes: Battery-powered devices often end up in general waste instead of being disposed of properly. If the casing of a lithium-ion battery is damaged during processing, the battery can react and catch fire. Additionally, the material can sometimes heat up with a time delay, meaning critical developments are initially invisible. To detect such temperature increases early on, Vecoplan has developed the new “Hotspot Monitoring” system. The bispectral thermal imaging camera monitors defined areas across a wide surface and provides both a thermal image and a camera image. If the temperature in a monitored zone exceeds defined limits, the system triggers an alarm. The system monitors not only conveyor belts but also material flows, stockpiles, hoppers, and material supply lines. Since the sensor is installed outside the material flow, it is not subject to mechanical wear and is less prone to contamination.

More than a temperature sensor: AI analyzes what the camera sees

Conventional systems measure temperatures but do not provide context. As a result, heat generated by vehicles or exhaust fumes can be mistakenly interpreted as a fire source, even though it does not result from the monitored material reaching critical temperatures. The AI-powered image recognition of “Hotspot Monitoring” can distinguish between these cases and prevent false alarms. The individual areas of the material supply line can be configured accordingly so that forklifts or wheel loaders do not trigger an alarm. “Many facilities today have temperature sensors, but only a few have a system that understands the context,” explains Paul Mockenhaupt, Head of Automation Technology at Vecoplan. “That’s exactly what makes the difference. ‘Hotspot Monitoring’ detects not only heat, but potential hazards too.”

“Hotspot Monitoring” is integrated into the Vecoplan Smart Center (VSC) – Vecoplan’s digital platform for real-time data and remote access – and enables continuous temperature measurement within defined monitoring zones. The system operates reliably even during internet outages, as it is linked to the VSC but does not depend on an internet connection. A control unit processes the alarm and temperature signals, while the VSC.router handles the secure IT connection. This also enables remote

support, such as when evaluating incidents. In the event of an alarm, the relevant personnel gain direct access to the system and can immediately review the incident.

With “Hotspot Monitoring,” Vecoplan is closing a gap in early fire detection at recycling facilities. As a full-service equipment provider, the company covers the entire process from shredding to conveyor and screening technology to cleaning technology. Thermal imaging technology fits seamlessly into this integrated system, reducing the number of interfaces for operators thanks to coordinated technology. The camera can also be easily retrofitted and integrated into various systems. In this way, Vecoplan combines thermal imaging technology, automation, and service into a single solution.

Further information is available at www.vecoplan.com/en.

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Photos



Caption 1: The bispectral thermal imaging camera monitors defined areas across a wide surface and provides both a thermal image and a camera image.



Caption 2: With “Hotspot Monitoring,” Vecoplan is closing a gap in early fire detection at recycling facilities.



Caption 3: The AI-powered thermal imaging system monitors not only conveyor belts but also material flows, stockpiles, hoppers, and material supply lines.

About Vecoplan GmbH

Vecoplan GmbH is a manufacturer and supplier of machinery and equipment for processing and handling primary and secondary raw materials for material and thermal recycling. These include wood, biomass, plastics, paper and other materials, as well as domestic and commercial waste. The company's extensive portfolio lays the foundation for effective recycling. Vecoplan supports both individual machine orders and complex plants and mega-projects as a partner. The company currently employs 580 people at its own locations in Germany, the USA, Great Britain, Spain, Poland, Italy and France.

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