

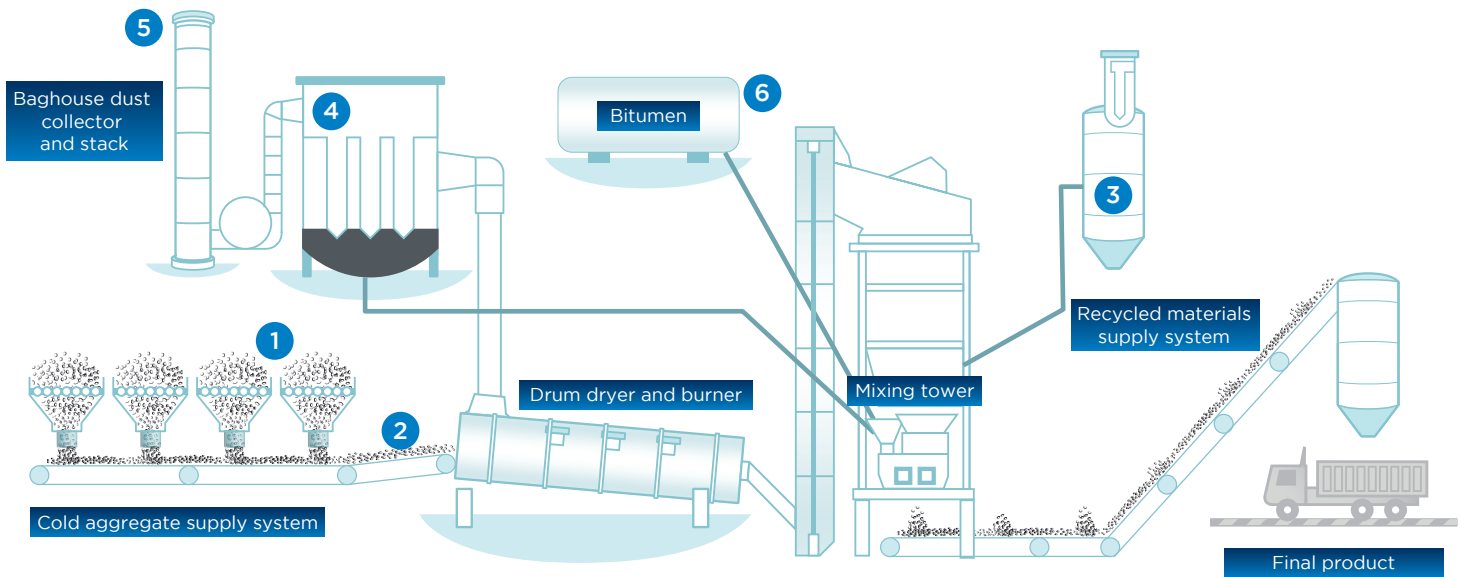
MONITORING SOLUTIONS

ASPHALT INDUSTRY

Asphalt plants deal with a harsh environment and are subject to great mechanical and thermal constraints.

ENVEA offers a large range of robust and reliable solutions including online moisture measurement and filter performance monitoring.

ASPHALT PRODUCTION



- 1 Moisture measurement
- 2 Material flow monitoring
- 3 Level and limit detection
- 4 Filter performance monitoring
- 5 Emission monitoring
- 6 Ambient air quality monitoring or/and process leak detection

Working closely with many of the world's leading asphalt producers, ENVEA has developed an in-depth understanding of monitoring conditions faced by the plants.

The production process is complex, including the use of various materials such as rocks, sand, gas, bitumen, etc.

ENVEA proposes a specific package of online measurement solutions helping plants to optimize their process efficiency, save energy and limit their environmental impact.

TESTIMONIAL – MR. PIERRE BEAUQUESNE, EQUIPMENT MANAGER AT EUROVIA

The EUROVIA MPRO asphalt plant in Mitry Mory (France) was commissioned in 1988.

The site produces more than 120,000 tons of asphalt each year for road construction sites.



What is the context for upgrading the site in terms of emissions control?

"The installation is equipped with a bag filter covering a surface area of more than 1,100 m², which is composed of more than 700 Nomex® type textile bags. It is intended to ensure the filtration of dust-laden raw gases in order to guarantee a weight index set by local authorities' order at 50 mg of total dust/nm³. As the filter bags of this dust collector are highly strained, we were looking for a reliable measuring device to alert us immediately if the 50 mg threshold was exceeded."

TESTIMONIAL – MR. PIERRE BEAUQUESNE, EQUIPMENT MANAGER AT EUROVIA

What ENVEA solutions have you implemented?

"As part of an IoT experiment for the development of the connected factory at EUROVIA, we took advantage of the partnership with ENVEA to test the LEAK ALERT 65-02 connected in real time to our IoT platform.

The device quickly demonstrated its efficiency and met our expectations by immediately alerting us to the slightest filter failure. Indeed, after a few days of use we noticed a peak of overflow at a regular frequency which corresponded to a filter bag that had shifted in its housing. The bag was replaced correctly and the peak disappeared immediately."

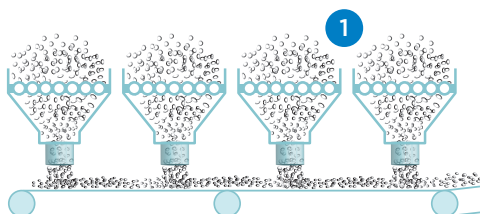
Did the ENVEA solutions meet your expectations?

"We have conducted extensive tests and are fully satisfied with the stability of the measurements and the durability of the LEAK ALERT 65-02. We have therefore asked ENVEA for a wider deployment of this type of device on EUROVIA sites looking for solutions for dust leak detection.

Thanks to the quality of our exchanges with our contact at ENVEA, we were also able to deploy similar devices on other sites in the Ile-de-France region and in the rest of France where the IoT system is not implemented.

The VIEW 370, associated with the Dust Tools software, has thus proved to be a reliable and durable solution for dust measurement. The system is self-contained and allows for easy reporting of emissions without the need to develop a specific internal tool. As it is not yet linked to our IoT system in direct measurement, it has therefore successfully met our operating constraints."

MOISTURE MONITORING



Cold aggregate supply system

Moisture content monitoring of several materials featured in the production process is a significant element that can be leveraged in order to optimize operating parameters and improve its efficiency.

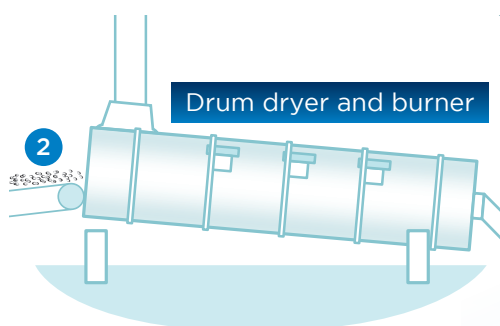
Moisture measurement can be implemented on the following materials:

- on aggregates of all sizes, such as sand, that are sent to the rotary kiln via cold conveyors
- on recycled materials inserted in the mixing tower.
- on bitumen injected in the mixing tower. Requirement: it needs to be dry and cold.

ENVEA's solution: M-Sens

- Customer benefits:**
- ✓ Optimized dryer combustion, reduced gas consumption
 - ✓ Time saving and product quality improvement thanks to online and continuous moisture measurement.

MATERIAL FLOW MONITORING



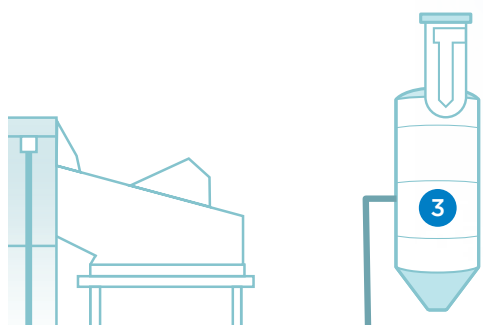
Drum dryer and burner

Due to the harsh conditions within the process, material flow monitoring is essential to ensuring a better yield of the final product and thus increasing the productivity.

ENVEA's solution: FlowJam

- Customer benefits:**
- ✓ Quick detection of production stoppages
 - ✓ Reduced downtime and maintenance

LEVEL AND LIMIT DETECTION



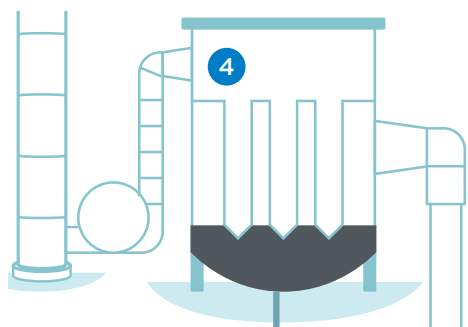
Minimum and maximum level detection at various points within the asphalt plant is critical.

If silos, bucket elevators, chutes and hoppers are overfilled or insufficiently this will lead to blockages and plant downtime.

ENVEA's solution: ProGap

- Customer benefits:**
- ✓ Online warning of materials level
 - ✓ Quick detection of production jams

FILTER PERFORMANCE MONITORING

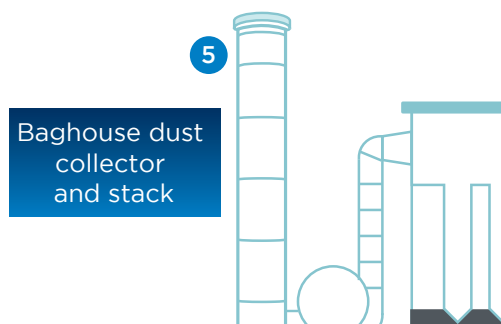


Optimizing filter performance is key to ensuring the smooth running of production facilities. The ability to identify or predict filter failure ensures production is kept at its required demand.

ENVEA's solution: LEAK ALERT

- Customer benefits:**
- ✓ Reduced downtime
 - ✓ Increased productivity
 - ✓ Reduced filter replacement costs

EMISSION MONITORING

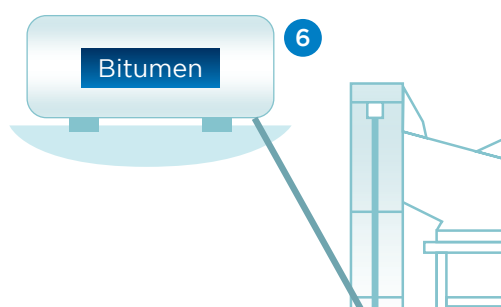


Continuous measurement of particulate emission flow and concentration enables to meet and exceed national and international standards. That can be achieved through ENVEA's *ElectroDynamic™* range of products designed for use in harsh environments.

ENVEA's solution: STACK, VIEW or STACKFLOW range, DUST TOOLS software

- Customer benefits:**
- ✓ Compliance with Emission Limit Values (ELV)
 - ✓ Reduced environmental impact

AMBIENT AIR QUALITY MONITORING



Real-time odour monitoring (ex: H₂S), particulate leaking and PM sizing can help to better identify environmental issues as well as protecting the workforce/neighbours from exposure to hazardous material.

ENVEA's solution: Cairsens micro-sensors (H₂S and PM), AirSafe

- Customer benefits:**
- ✓ Help to reduce environmental impact on population
 - ✓ Anticipate at-risk situations
 - ✓ Reduce maintenance costs



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