

## Smart Products: Avoid downtime and optimize processes

### Intelligent lining technology minimizes risks for mining and bulk material transport

The movement of large masses places high demands on technology and equipment. Wherever bulk goods are transported, stored or processed, sticking and wear cause downtimes in the work process. With the Matrox® product family, Röchling has developed materials specifically for the demanding process of conveying bulk materials. As a lining, the material not only ensures the smooth flow of bulk materials, it also protects underlying components in machines and systems. A reliable material for conveying processes for years, which now offers customers in mining and bulk material conveying even more safety with an integrated sensor.

**Smart Matrox®**  
Intelligent lining

### Less downtime with liners made from Smart Matrox®

Unplanned downtime and inefficient processes result in major losses in almost every industry. To avoid this, Röchling Industrial has developed intelligent plastics with sensors that can be used to monitor different components in a material. In the material Smart Matrox®, which was specially developed for mining and bulk material transport, components such as wear, or the temperature of a plastic sheet are continuously monitored with the help of integrated sensors. Downtime can be prevented, and processes optimized. Topics such as predictive maintenance, automated spare parts supply and process monitoring are much easier to implement with the use of Smart Matrox®.



### Temperature and wear sensors assume important warning functions

As a lining in silos or in installations in remote locations where monitoring would otherwise be very difficult, Smart Matrox® enables easy monitoring of the material. Despite the very good properties of the material, high or heavy material flow can lead to damage or increased wear of the lining. In addition to wear, temperature also plays a role, especially in conveyor belts. If these become too warm, this can lead to major damage. In areas where damage can quickly lead to further process problems, Smart Matrox® provides an important warning function. The sensors are already integrated into the sheet during the manufacturing process. Depending on the customer's requirements, the sensors measure the wear and / or the temperature in the plate, among other things, and issue a warning when predefined limit values are reached. Components can thus be replaced in a planable manner.

### Smart Matrox® already provides reliable data

In the lining material Matrox®, the use of wear and temperature sensors has proven particularly effective. Both sensor types have been successfully tested in the Matrox® material and are already providing reliable data for customers with applications in mining and coal-fired power plants. Tested areas of application are slides and bulk beds on conveyor lines. In conveyor belts, Smart Matrox® is used as a skid plate under the conveyor belt and monitors the temperature of the conveyor system. A customer in the mining industry has already been able to prevent damage caused by fire in this way.

## MEASUREABLE DATA



Measurable: Integrated sensors monitor different data



Smart Matrox® is also suitable for numerous other areas, and the number and placement of the sensors can also be individually adapted to customer requirements. In addition to monitoring wear and temperature, various customer-specific data can be recorded and measured with Smart Products.

One of the tested areas of application: Conveyor belt in a mine





## Portus – IoT platform bundles collected data

A platform specially developed for Smart Products, called Portus, bundles the data collected by the sensors in the smart product. The integration of sensors is not only limited to Matrox® and is already being supplied to customers in other materials. A so-called SmartBox, which individually collects data from the various smart Röchling products and forwards it to Portus, ensures reliable data. All data is collected individually according to customer requirements and not passed on to third parties. The collected data can be easily read out via dashboard or on a mobile device.

### Portus offers customers individual functions:

- Dashboard about machines equipped with intelligent products
- Microapp structure: Different apps for applications such as Smart Wear, Smart Stock
- 24/7 notification
- Interface to the customer's own ERP system
- Status visualization and event notification, such as over-temperature
- OEM customer has access to end customer applications/devices
- End customer has access to all his applications/devices
- Customize application title and subtitle

### Smart Products at Röchling Industrial

At Röchling Industrial, Smart Products are intelligent plastic components with integrated sensors in order to permanently monitor important process data of a component. This data is collected with a SmartBox and transmitted to the IoT platform called Portus. They thus form the basis for an early warning system that draws attention to critical factors - before failures occur. In this way, automatic ordering processes can be stimulated, or components can be replaced before they fail. Smart Products from Röchling are designed as plug & play and are delivered ready for installation.

### Smart Plastics at Röchling Industrial

Röchling also supplies identifiable and authenticated plastics. These contain tiny marker particles that give each component an unmistakable identifier. This makes it possible to clearly determine whether a product is an original component. Customers receive more process security when operating systems, unlawful complaints can be avoided and the SmartMarker particles provide reliable counterfeit protection. The markers are invisible and do not affect the technical properties of the material. Smart Plastics with marker particles can be integrated into various Röchling Industrial products. It is also available for the Matrox® lining material if desired.



Smart Matrox® is based on the material Matrox®:  
Particularly suitable for demanding applications

Photo: hapa7-Fotolia

#### Contact :

**Michal Sládek**  
**Industry Manager Mining**  
**Röchling Industrial Tábor s.r.o.**  
T +420 381 200 278  
[msladek@roebling.com](mailto:msladek@roebling.com)

### Matrox® for bulk materials and mining

Smart Matrox® is based on the material Matrox®. The Matrox® product line is a range of engineering plastics used to solve friction, wear and material flow problems in many areas of industry. The material was specially developed for bulk material handling and mining in order to reduce the typical flow problems with solid bulk materials in bunkers, silos, hoppers, transport chutes, vehicle bodies and other applications. An extraordinarily low surface friction, excellent wear resistance, high impact strength, excellent chemical resistance and excellent suitability even for demanding applications are the characteristic key properties of the product.