

26

Fe

Iron

Symbol: Fe

Atomic number: 26

Transition metal

Melting point: 1,538 °C (2,800 °F)

Boiling point: 3,000 °C (5,432 °F)

Aggregate state under normal conditions: solid

Density: 7.87 g/cm³ (0.284 lb/in³)

Use: as steel, cast iron, wrought iron

Ready for anything

Higher corrosion protection with lower process costs: as a protective barrier for sheet steel bodies on heavy agricultural and construction machinery, powder-on-powder coating technology has proved highly effective. No matter how extreme the conditions may be, this paint can handle it.

For many, iron may conjure up images of rusty steel beams. Even visitors to the grounds of the Wirtgen company in Windhagen, Germany, initially see only the rust-brown steel body of a large construction machine, weathered in transport and storage. It's on its way into the continuous blasting system. There the body will be cleaned before it receives a new coat—a powder-on-powder coating—in the large component paint shop. The powder-on-powder coating consists of a primer that protects against corrosion, and a top coat paint that shields the primer against UV rays and weather.

After the process, the steel skin is scarcely recognizable. Wherever the heavy machine is ultimately deployed, the paint will withstand

any conditions. The procedure, which dispenses with energy- and time-intensive intermediate curing, has proved its mettle over time. In 2015 alone, the share of powder-on-powder surfaces at Wirtgen rose from 30 to 70%. In manual application situations, powder-on-powder coating is possible even in hard-to-reach areas. The paint is applied using tribo-technology, in which the powder particles become electrostatically charged through friction.

The procedure has caught on. With the Pöttinger company from Grieskirchen, Austria, powder-on-powder expert Jochen Reihs handles an agricultural machinery manufacturer that uses this coating procedure in the Czech Republic. The ongoing development and adaptation of the technology to customer requirements at Pöttinger as well is demonstrated by the coating of a waste container in Slovakia. In this case, a metallic effect was added to the specially developed coating. "We had to use a few technical tricks to manage that with powder-on-powder," concedes Reihs. When he thinks of iron, rusty steel is just about the last thing that comes to mind.



JOCHEN REIHS is responsible for technical customer management in Wörwag's Industrial Coatings Division. The 49-year-old advises and trains users in the powder-on-powder coating technique. He has fond memories of raw iron: "As a child I used to ignite small iron filings. The sparks flew just like in fireworks."

FLUCTUATIONS OF UP TO

30

CENTIMETERS (12 INCHES)

can occur in the height of the Eiffel Tower in Paris between winter and summer. The reason for that is the normal thermal expansion of the iron from which the 18,038 parts and 2.5 million rivets of the tower are made. In normal weather conditions, it is just under 325 meters tall (1,066 feet); the final 25 meters (82 feet) are added by the antenna. Painting it requires 65 metric tons of paint.

Heavy-duty workers: thanks to Wörwag paint, the "surface miners" from Wirtgen can withstand the extremest conditions.

