

# Corrosion Protection Whatever the Weather

Temperatures below freezing point or excessive levels of air humidity often make it impossible to carry out coating work. A new all-weather technology now aims at remedying this situation, ensuring that corrosion protection products can be applied even under adverse conditions.

According to DIN EN ISO 12944 “Corrosion protection of steel structures by protective paint systems – Part 7”, coating materials should not be applied at temperatures that are 3 K below the measured dew point. If the temperature is lower than this, condensation may form on the substrate, thus resulting in a reduction in adhesion between the substrate and the first coating layer or between the individual layers of the coating system. For that reason, it is generally only in exceptional cases that coatings are applied at a relative humidity of more than 80 % and at temperatures of below +5 °C. Such weather conditions can often be encountered in the transition months in spring and autumn, when a wet film appears on coated surfaces particularly in the early hours of the morning. In these cases, long and unproductive waiting periods need to be observed until the processing window allows coating to be performed again. But what if these parameters were no longer to play a role in the future? Geholit+Wiemer have addressed this issue and have now introduced all-weather technology after four years of intensive development.

## Reliable application on various substrates

As this coating is largely unaffected by weather influences, it is no longer necessary to observe the parameters mentioned above. The one-component high-solid products can be used either as a primer and top coat system or as a single-layer coating at ambient and object temperatures of between -5 °C and +40 °C. Very

good brushability, optimum flow characteristics, and very good material stability ensure easy and reliable application on different substrates, such as blasted steel and hot-dip galvanized surfaces, as well as on old coatings and residual rust (St2). The curing time of the coating materials with a VOC of only 5 % by mass is largely independent of the temperature. Even at a temperature of only +5°C, coating can already be carried out the next day. Suit-



Fog and dew – usually unfavorable conditions for coating work.

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Surface tolerance and optimum flow characteristics of the all-weather technology.

Dew-covered surfaces, such as those here on a transformer substation, can be coated directly.

ability for corrosivity categories C3 to C5 with a durability category of “high” for various coating systems has been confirmed by an external testing institute.

The application properties of the new technology are also convincing. The all-weather products can be applied to various substrates by rolling, brushing, or airless spraying, depending on the geometry of the component. What is more, these properties remain largely constant regardless of whether the temperature of the materials is low or high. The optimum flow characteristics ensure a smooth, uniform finish for the coating and provide protection against corrosion even on complicated areas such as screw connections or gaps.

An evaluation of climate data with the above-mentioned processing parameters of the all-weather technology showed an extension of the coating period per year of up to four months. On this basis, in 2019 in cooperation with the major energy supply companies, electricity pylons were coated during the months from February to December under the most varied and adverse weather conditions.

Both those responsible for the pylons and the application engineers themselves were convinced by the results. Since then, the products have been used for the most diverse applications – for ex-

ample for coating downpipes in pumped-storage hydroelectric power plants, pipe bridges, storage tanks, and many others. All-weather technology is also an ideal solution for indoor ski slopes, mines, swimming pools, tropical glasshouses, and other objects where the climate conditions can either not be changed or can only be changed with considerable effort and cost.

### Better planning of working time

“We are specialized in the coating of lamp posts throughout Germany. Particularly in spring and autumn, we are extremely dependent on the weather conditions. That is now no longer necessary. The new all-weather products enable us to plan our working times much more reliably. We could even work during the winter months at temperatures as low as -5 °C while still maintaining our high quality standards. The all-weather products can be wonderfully applied to galvanized steel posts,” said Ismail Tahir from Tahir Korrosionsschutz in Herford.

Sabrina Gibbins, painting specialist at Manitowoc Cranes in Wilhelmshaven, is also interested: “During a conversation with the sales manager at Geholit+Wiemer, we talked about the coating requirements during our produc-

tion process and the challenges involved. Counterweights, which are specially designed for our mobile cranes and which need to be coated, are stored outside at our company site after delivery. These counterweights, which can weigh up to 20 tons, often have an extremely low core temperature, especially during the colder seasons, and so before they could be coated, they had to be stored for several hours in our workshop so that they could warm up. With the all-weather technology, we have perhaps found a new product that can shorten this production process and improve productivity. The material is currently being tested and is being thoroughly put through its paces at our company.” //

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