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A WINTER SWEATER FOR HOUSE WALLS

In cold and wet weather, painters must interrupt their work, because the applied plaster and paint don't dry sufficiently. WACKER experts have now developed a new additive, PRIMIS® KT 3000, that forms a gelatinous protective film, allowing outdoor work to be performed for a greater part of the year.



Paints and plasters generally only set adequately if the temperature remains above 5°C for several days. Otherwise the waterborne systems will freeze. PRIMIS® KT 3000 shortens the setting time substantially.

Very few people welcome cold, wet weather. Facades, too, are sensitive to changes in the weather – especially when they have just been freshly painted or plastered. Water-based paint or plaster on exterior walls ideally dries at temperatures of greater than five degrees Celsius. If it is too cold, the various components freeze and the paint doesn't set fully. On thawing, the plaster cracks, so that the facade no longer serves its protective function. The plaster must then be applied again, which costs time and money.

As a rule of thumb, paints and plasters only set adequately when the temperature stays above five degrees Celsius for at least three consecutive days. Then, the water evaporates slowly enough for the polymer chains of the dispersion to diffuse and form a stable film. "In colder regions of the world, such as Northern or Central Europe, this is not usually the case in late fall or early spring. It is then simply too cold for outdoor painting work," explains Dr. Markus Busold, global marketing manager at WACKER POLYMERS for dispersions in the architectural coatings sector. "That's why manufacturers of paints and plasters are interested in solutions that extend the time frame for outdoor work."



Direct comparison in the laboratory: after six hours' drying time, the test surfaces are irrigated. While the commercial plaster (left) does not withstand the moisture, the plaster modified with PRIMIS® KT 3000 (right) has formed a stable polymer network after only a few hours.

STABLE NETWORK

This is exactly where WACKER's new additive comes in: PRIMIS® KT 3000 forms a gelatinous structure, which allows paints and plasters to dry at lower temperatures. "Laboratory tests have proven that, with our additive, the specified five degrees Celsius are only needed for six hours, even when atmospheric humidity is high. The polymer network is then stable," explains Lenine De Sousa Gomes, technical manager at WACKER. "This also protects the paint or plaster layer, allowing it to dry without interruption."

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It even works when there is heavy rain, as De Sousa has demonstrated in the lab. He had a layer of plaster applied to a simple glass plate and allowed it to dry in a climatic chamber for six hours at 5 degrees Celsius and 85 percent atmospheric humidity. Then, a 20-minute shower – created with a shower head – rained down on the coated glass plate. "The test showed that one to three percent PRIMIS® KT 3000 is enough to significantly improve the adhesion. The surface of the coating was hardly damaged at all," says De Sousa. "This is a great advantage over products that are currently available on the market, which only feature very slight resistance to early rain."

GELATINOUS SHIELD

So, WACKER's additive ensures that a gelatinous structure can form. This is due to its chemical composition. The product contains zinc acetate, which forms complexes with water molecules, i.e. binds them to it. Poly-

ethyleneimine is another constituent. "This molecule can form bonds with components in the paint or plaster," explains the WACKER expert. "That creates a kind of gel, which distributes homogeneously in the coating, and is particularly resistant to rain." At the same time, water molecules can evaporate from the paint or plaster. This is important to allow the coating itself to dry. The chemist is currently performing further tests on drying times, storage stability and pH changes.

A big advantage is that the additive can easily be mixed with WACKER's vinyl acetate-ethylene-based VINNAPAS® dispersions. "In this way, we are expanding the application and service range of our own products and offer our customers – manufacturers of paints and plasters – a valuable additional benefit," says marketing expert Busold. The WACKER team is already testing whether the additive can also be used for other construction applications to make outdoor work less dependent on the weather. ■

EXPERTISE AND SERVICE NETWORK ON FIVE CONTINENTS



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All figures are based on fiscal 2016.



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