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Wall cladding with extremely weather-resistant UV exterior varnish

Researchers at the Fraunhofer WKI are demonstrating an exterior wall treated with extremely weather-resistant, transparent, UV-resistant exterior paint.

The basis for this is provided by polyurethan itaconates, a relatively new group of bio-based UV-cross-linkable binders. In traditional acrylates, cross-linking usually occurs via photoinitiation of the acryloyl groups with UV radiation.

A novel synthesis route for the bio-based binder omits the introduction of the reactive acryloyl groups. Instead, the researchers use itaconic acid, a white, crystalline, monounsaturated dicarboxylic acid derived from a byproduct of sugar production.

Itaconic acid allows the production of highly weather-resistant, water-dilutable, UV-cross-linkable binder dispersions.

The hazard potential of itaconic acid is much lower than that of 2-hydroxyethyl acrylate, an acrylate commonly used to synthesize conventional UV binders. In addition, a complete synthesis step is saved in the production of the dispersion, which compensates for the higher costs of bio-based materials.

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