

Hemmelrath Lackfabrik and Paderborn University are aiming to develop a bio-based yet highly scratch-resistant clear coat, by dint of which even deep scratches in the car body can repair themselves.



The idea is to form novel complex compounds with specialised, functional biomolecules. These compounds are not held together by classical chemical bonds but by reversible van der Waals forces. These complex compounds form reversible intermolecular bonds in the interlinked coating system. Under mechanical stress, for example caused by the bristles of a washing brush, these weak bonds separate easily in order to return spontaneously to their initial state after the stress is removed. This therefore keeps the surface intact.

The project aims to identify suitable bio-based building blocks to build these complex compounds and develop them into a technical product. The scientists are also aiming to produce the entire coating system from 80 to 100% renewable raw materials and to use sources that do not compete with food such as waste materials from food production. Carmakers have expressed interest in the product, and we at DVN cannot help thinking that the car body is not the only part protected by clear topcoats currently subject to abrasion damage; so are headlamps!