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Today's car enthusiasts have a diverse range of requirements: popular issues that concern them include safety in the vehicle, a good driving

experience, a powerful engine and sophisticated technology. If drivers want to make an impression with their vehicle, decorative elements such as coloured wheel rims, brake calipers, exhausts, footboards or bodywork and engine components are increasingly being added. In an ideal scenario, it is possible to combine decorative coatings with protection from corrosion and wear. INM – Leibniz Institute for New Materials will be presenting such coatings at this year's IAA International Motor Show. It will present its results in cooperation with automotive.saarland in Hall 4.0 at Stand D27.

The coatings have glassy and glass-ceramic properties. They therefore reduce the level of corrosion and wear, susceptibility to scratching or tarnishing and other processes of oxidation on surfaces. To complement these protective properties, depending on the choice of colour pigments, the INM production method can be used to produce the colours of red, black, green, white and blue for decorative purposes with stability at high temperatures. These functional coatings are suitable for metallic substrates such as steel, aluminium or alloys or as a protective layer for glassy components.

"In addition to the properties which have been mentioned, our production method also opens up other possibilities," says Peter William de Oliveira, head of the Optical Materials program division. These include possible non-stick properties, a certain flexibility in the layer or also the possibility of electrical insulation as a result of the vitreousness.

The INM uses special silicates for the coatings. They are converted into a sol-gel nanocomposite in a single-step reaction. Depending on the colour pigment and the substrate, this means that surfaces can be hermetically sealed at from 200 to 800 degrees Celsius. The thickness of these layers ranges from two to ten micrometres. Curved and flat surfaces can easily be covered with the coating in immersion chambers or spray booths.

Provided by Leibniz Institute for New Materials