World of Polyurea

Novel polyaspartic-based gelcoats offer contractors a more environmentally friendly option

Contractors repairing aged gelcoats typically use traditional polyester gelcoat formulas. According to Bayer MaterialScience LLC's Steven Reinstadtler, construction marketing manager - Coatings and Sustainability Initiatives, Bayer MaterialScience LLC, new developments in polyaspartic technology offer contractors a more environmentally friendly option. In a paper presented at the GreenCOAT in Las Vegas Reinstadtler demonstrated how novel polyaspartic-based gelcoat technology can replace traditional site-applied polyester gelcoats, while also offering lower volatile organic compounds (VOCs), improved weatherability, fast return-to-service time, less odor and improved scratch, chip and crack resistance.

Gelcoats are the decorative outer layer of a composite part and are usually pigmented, with white being the primary color. They are typically 15-20 mils thick and site applied over an existing aged gelcoat as a repair. Conventional gelcoats are the reaction product of unsaturated polyester or vinyl ester and styrene using peroxide as an initiator. Conversely, polyaspartic-based gelcoat technology is a 100 percent solid, two-component (2K) aliphatic polyurea system. The new gelcoat options utilizing polyaspartic technology meet the demands of owners and contractors, such as reduced VOCs, faster cure time, low to no odor and ease of use. As Reinstadtler explains, testing performed by Bayer MaterialScience LLC assessed polyaspartic-based gelcoats on a variety of criteria, including weatherability, abrasion resistance and impact resistance. The polyaspartic-based gelcoat exhibited superior performance, including abrasion resistance that was two times better abrasion resistance than traditional polyester gelcoats.

The use of polyaspartic technology also benefits contractors by allowing the application of one thick coat, eliminating time-consuming multiple coats, while still providing owners with a more durable and sustainable solution. A variety of applications for which gelcoats can be used, such as exterior construction – waterslides and decorative facades; power applications – wind turbine blades; and recreational vehicles – boats and snowmobiles have been presented. In addition the advantages of polyaspartic-based gelcoats – both - indoors and outdoors – through case studies of two aged waterslide refurbishment projects have been demonstrated.

ATTENTION

Please note that the email address of PDA Europe has changed. The new email address is **info@pda-europe.org**, effective 15th February, 2011. Please amend your records as the old email address will only remain active until the end of March.

Case Study - Polyurea

Project: automotive coating/wear protection coating / interior protection - VAN (Mercedes-Benz Sprinter)

Processor:
KBA-Beschichtungstechnik, Hahnstätten, Germany, kba-beschichtungstechnik.de

Material Supplier: Hercules GmbH, Villach, Austria, www.hercules.at

Material: Hertec 1150 system (100% solid polyurea, certified to EN 12053 – Noise emission measurement of fork-lift trucks on hydraulic loading platforms)

Substrate: plywood panels on steel sheets

Primer: Hertec Pox 002

The interior of a Mercedes-Benz Sprinter needs a highly durable protective coating that must be abrasion resistant and able to minimize noise. This is why special plywood panels have been glued to the existing steel base of the van (using Hertec F 75 S Joint Filler), and then coated with a special wood primer. Hertec 1150 was used for the 2 mm coating (solid polyurea – this product was subjected to and passed the ÖNORM EN 12053 noise emission test). This structure achieved the required flexibility in the base of the Sprinter. Finally, for visual effect, a special polyurethane was sprayed using an airless gun (known as the ‚Gatter' technique) to achieve a slightly marble look finish and making the surface anti slip.