



## Case History

Floor coating for highly-stressed surfaces

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# The Hansaplatz parking garage: durable coating for mechanically-stressed surfaces



Bayer Polymers

# Hansaplatz underground parking garage, Dortmund

Located in the heart of Dortmund is the Hansaplatz underground parking garage, a busy garage serving a large number of vehicles. Day in, day out, more than 3,000 cars are parked in the six-level garage. And not just from dawn to dusk, but round the clock. The garage's operators, SBB Dortmund, chose a particularly wear-resistant coating to handle the stress to which the structure is subjected. To prevent damage to the parking decks and ramps and correct existing irregularities in the substrate, the 16,850 m<sup>2</sup> surface was coated with an Egodur polyurethane coating system from the formulator Heidelberger Bauchemie (HBC). With its hardness and crack-bridging capabilities, the coating based on Bayer polyurethane raw materials proved to be the optimal material for meeting the operator's requirements.

## Easy application despite difficult conditions

The underground parking garage at Hansaplatz was coated in 1989. The application of the coating system represented a tremendous technical challenge in two respects. First, the substrate, barely six months old, was an inhomogeneous concrete that contained not only countless cavities and defects but also tended toward cracking. Second, the coating was applied under difficult conditions: high humidity with temperatures between 8 and 15 °C. The construction company used heating, ventilation and dehumidifying equipment to get the moisture under control. Even under these conditions, application went smoothly thanks to the polyurethane coating system's good application characteristics.

After applying Polyment 1450 P, an epoxy resin-based primer, Polyment 3600 was applied as an intermediate coat. This material is characterized by its high elasticity and is therefore capable of bridging any shrinkage cracks that may appear in the concrete. The ductile intermediate coat is thus the ideal basis for an unblemished surface. The polyurethane topcoat – likewise Polyment 2600 – was then applied. Korrodur was scattered on the topcoat to obtain a non-slip surface. Finally, gray Polyment Kopfversiegelung N was applied to provide an aesthetic, uniform appearance. A total of 21 tons of coating material were applied. The result: a homogenous, non-slip surface.

## Structure-dictated improvements – no problem with polyurethane systems

What the contractors didn't expect: one year later, significant settlement cracks which could not be bridged by the coating appeared at the building expansion joints. The damage was repaired immediately and has not recurred – an illustration of the easy reparability of polyurethane coatings. Even when parking spots reserved for women were added at considerable effort and expense in the mid-90s, it was a simple matter to refinish the coating.

The underground parking garage at Hansaplatz has now been in operation for more than a decade. Not only has the excellent driving surface been well-received by the people parking in the garage each day, the operators also have high praise for the coating. An inspection has revealed no wear other than minimum korrodur abrasion in a few high-traffic areas. SBB is very pleased with the coating project: operating seven parking garages in Dortmund, they have plenty of opportunities for comparison. They also appreciate that fact that the surface in the Hansaplatz garage is easy to clean, is trouble-free and has already surpassed the service life of any other parking garage floor coating.



### The property

Location: Hansaplatz, Dortmund  
Operator: SBB Dortmund GmbH  
First coated: 1989

### Raw materials from Bayer AG

Desmodur®  
Desmophen®

### The coating

Formulator: HBC Heidelberger Bauchemie  
Substrate: Concrete, with defects and hairline cracks in some places  
Primer: Epoxy resin based on Polymert 1450 P  
Intermediate coat: Polyurethane floating coat based on Polymert 3600  
Topcoat: Polyurethane topcoat based on Polymert 3600 with abstreuung  
Sealer: Polymert Kopfversiegelung N

### Advantages

- Simple application
- Crack bridging
- Excellent mechanical strength
- Long life
- Easy to clean
- Good reparability
- Very economical

Internet: <http://www.bayercoatings.com>

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