

Lining of a cathodic electrocoating system with SIMONA® PP AlphaPlus® for Adam Opel AG



Top: cathodic electrocoating bath with SIMONA® PP AlphaPlus® inliner; bottom left: technical drawing of the cathodic electrocoating bath; bottom right: cathodic electrocoating bath filled with liquid paint

G&H Kunststofftechnik GmbH & Co. KG was commissioned by Adam Opel AG to line the interior of an existing standard-steel continuous-flow system for cathodic electrocoating of automotive body parts. For this application plastic was used for the first time at Opel. Due to the high demands made on the lining material in terms of chemical resistance, the contractor opted for SIMONA® PP AlphaPlus® Sheets and Pipes.

The project at a glance

Project

Lining of a continuous-flow cathodic electrocoating system with SIMONA® PP AlphaPlus®
L x W x H = 29.8 x 3.4 x 2.2 m

Requirements

- Lining material free of substances that would interfere with paint wetting
- High chemical resistance
- High rigidity and strength
- Easy processing
- Long service life

Client

Adam Opel AG, Rüsselsheim am Main, Germany

Contractor

G&H Kunststofftechnik GmbH & Co. KG, Sprockhövel, Germany

Technical support

SIMONA AG, Technical Service Centre

Products used

- SIMONA® PP AlphaPlus® Sheets, 3,000 x 1,500 x 10 mm
- SIMONA® PP AlphaPlus® Pipes, d 110 mm x 10 mm, SDR 11
- SIMONA® PP AlphaPlus® Welding Rods

Duration of project

5 weeks



From left to right: applying the SIMONA® PP AlphaPlus® lining to the cathodic electrocoating bath; bath overflow; installing the nozzle pipes

SIMONA® PP AlphaPlus® Sheets and Pipes for maximum safety in electrical insulation

Initial situation

Cathodic electrocoating is a key process step within the corrosion protection system of a car's body shell. The metal parts to be coated are wired up as a cathode in an electric DC field in a bath of liquid paint and anti-corrosion paint is deposited in a thickness of just a few µm. In the automotive sector the baths of continuous-flow cathodic electrocoating systems are made of steel for strength reasons.

Task

To provide the required electrical insulation of the steel bath from the electrocoating paint, the interior of the bath is usually coated with GRP laminate. However, the application described in this report is one of the first in the automotive sector where for insulation purposes a polypropylene bath was to be placed in an existing steel bath (L x W x H = 29.8 x 3.4 x 2.2 m) in the form of loose-shirt lining.

In selecting a suitable lining material two important requirements also had to be met. The material had to be free of substances that would interfere with paint wetting and had to be chemically resistant to a temperature of 30 °C.

Solution

SIMONA® PP AlphaPlus® was evaluated by Opel as the ideal material for this application because it fully met the requirements mentioned. In addition, G&H had already used SIMONA® PP AlphaPlus® successfully as a lining material for similar applications. Therefore, they were able to take advantage of a proven SIMONA® Product.

The material was convincing because of its efficient processing, high rigidity and strength, and long service life. SIMONA® PP AlphaPlus® thus proved successful as an alternative to GRP laminate lining material.

SIMONA® PP AlphaPlus®

Properties

- Made of DIBt-approved PP-H moulding compound
- High chemical resistance
- High toughness and rigidity
- Good stress crack resistance
- Excellent corrosion resistance
- Ability to cope with use at high temperatures of up to +100 °C
- Permanently tight, strong welded joints

Fields of application

- Chemical tank and apparatus construction
- Energy technology and electrical engineering
- Printing, paper and textile industries
- Mechanical engineering
- Mobility

Product range

- Extruded and pressed sheets
- Twin-wall sheets
- Solid rods
- Welding rods
- Pipes
- Fittings
- Valves

Further information

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