

Collection tank for acid solutions – made with SIMONA®PP-DWU AlphaPlus®



Top: completion of the tank; bottom left: design drawing with steel basket;
bottom right: loading part of the steel reinforcement

G&H Kunststofftechnik GmbH & Co. KG was commissioned to construct a collection tank for the storage of acid solutions for an aluminium anodising plant. SIMONA®PP-DWU Alpha-Plus® was the material of choice. Boasting a high level of chemical resistance, it is perfect for constructing tanks and installations.

Project at a glance

Project

Collection tank for acid solutions with a capacity of 92,000 litres and a size of approximately 6.5 x 4.5 x 3.3 metres – made with SIMONA®PP-DWU AlphaPlus®

Requirements

- High chemical resistance to acid solutions
- High rigidity and strength
- Easy to process
- Long service life

Client

Faulenbach | Fichthorn GmbH & Co. KG, Sprockhövel, www.fafi-eloxal.de

Contractor

G&H Kunststofftechnik GmbH & Co. KG, Sprockhövel
www.gh-kunststofftechnik.de

Technical Support

SIMONA AG, Business Unit Industry, Advertising & Structural Engineering

Products used

- SIMONA®PP-DWU AlphaPlus® sheets
- SIMONA®PP-DWU AlphaPlus® welding rods

Duration of project

2010



From left to right: part of the steel reinforcement; welding the tank on site; tank in the installation

SIMONA®PP-DWU AlphaPlus® for maximum safety in industrial tank construction

Initial situation

By nature, aluminium forms a thin oxide layer that prevents any further oxidation of the metal. In an aluminium anodising plant this oxide layer is built up by technical means in an optimised process. The resulting oxide layer created artificially surpasses any natural layer by far in terms of thickness, hardness and hence wear resistance. However, creating an oxide layer on aluminium calls for an electrochemical process where acid liquids occur which have to be treated or disposed of. The quantity of such solutions depends on the size and throughput of the aluminium anodising plant.

Task

For an aluminium anodising plant, G&H Kunststofftechnik GmbH & Co. KG in Sprockhövel received a contract to build a collection tank with a capacity of 92,000 litres for acid solutions. Owing to site conditions, the tank had to be rectangular.

Solution

For this task the tank was constructed with SIMONA®PP-DWU AlphaPlus®, especially because of its high level of chemical resistance. Owing to its dimensions, the plastic tank – despite an external wall thickness of 25 mm – had to be reinforced with a steel cage in such a way that bowing would be limited to the maximum amount suitable for the particular plastic. When planning the tank, including the steel frame, G&H Kunststofftechnik GmbH & Co. KG used an appropriate tank calculation program. On account of its large size, the steel reinforcement for the plastic tank (approximately 6.5 x 4.5 x 3.3 m) was delivered to the construction site as individual components. The entire tank was assembled on site and then integrated into the installation as a whole at its final location.

SIMONA®PP-DWU AlphaPlus®

Properties

- 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 watertight, strong welded joints

Range of products

- Extruded sheets
- Welding rods
- Solid rods
- Pipes
- Fittings

Further information:

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