

Pickling line made of SIMONA® PP-DWU AlphaPlus® delivered to Rasselstein GmbH



General view of the pickling line and the various tanks

The entire process section of the sulphuric acid hot-strip pickling line at Rasselstein GmbH in Andernach, one of the largest tinplate manufacturers in the world, had to be rebuilt. Kunststoffbau Langschede GmbH convinced Rasselstein that SIMONA® PP-DWU AlphaPlus® was the material of choice. As part of the overall design process, the structural parameters as well as the expansion and connections of the various pickling tanks had to be taken into account. An essential prerequisite: top-quality materials.

The project at a glance

Project

Rebuilding of a steel strip process section, made of SIMONA® PP-DWU AlphaPlus® Sheets as well as SIMONA® PP-H AlphaPlus® and SIMONA® PVDF Pipes

Dimensions of the pickling line

- Steel strip width: 600 to 1,500 mm
- Steel strip thickness: 1.5 to 3.5 mm
- Production volume: 5,000 t/day
- Strip speed: 240 m/min
- Line consisting of four 25 m pickling tanks and one 20 m final rinsing section

Requirements

- High chemical resistance
- High thermal resistance
- Long service life

Client

Rasselstein GmbH, Andernach

Contractor

Kunststoffbau Langschede GmbH, Unna

Technical consultancy

Technical Service Center
SIMONA AG, Kirn

Products used

- SIMONA® PP-DWU AlphaPlus® Sheets in various thicknesses accounting for a total volume of 160 tonnes
- SIMONA® PP-H AlphaPlus® Pipes
- SIMONA® PVDF Pipes

Project time/duration

- 2006/2007:
- 9 months' planning
 - 20 days' rebuilding



Delivery of the pickling tanks to the Rasselstein steel plant

SIMONA® PP-DWU AlphaPlus® – the material for demanding applications

Initial situation

In 2006 Rasselstein GmbH, which specialises in the cold rolling and treatment of steel strip, had to rebuild a pickling line with a length of approx. 150 m. The steel and metal structures of the four pickling tanks and the final rinsing section were being subjected to high chemical and mechanical stresses on account of the aggressive chemicals being used (e.g. sulphuric acid), high service temperatures and the various speeds of the steel strips passing through. Although the surfaces of the pickling tanks were pretreated and advanced surface finishing had been performed, the metal and steel construction used until recently was not permanently resistant to corrosion under on-site operating conditions.

Task

A material had to be found which would ensure a long service life on account of its high resistance to aggressive chemicals and its high thermal resistance. Kunststoffbau Langschede, which has 10 years of experience designing and manufacturing industrial installations, convinced Rasselstein GmbH that when selecting materials for the construction of its new pickling lines it would be advisable to take a new approach and – instead of selecting steel as in the past – use PP and PVDF.

Solution

The exceptional material properties of SIMONA® PP-DWU AlphaPlus® ensure an extremely long service life and avoid the need to constantly replace process sections. The line was designed and computed using CAD 3D models, taking PP reduction factors into account. The use of high-end measurement technology, including 3D laser scanning, for the purpose of implementing the new process element within existing plant structures provided the basis for efficient assembly within just 20 days.

SIMONA® PP-DWU AlphaPlus®

Properties

- DIBt approval
- High chemical resistance
- High impact resistance and rigidity
- Good stress crack resistance
- Excellent corrosion resistance
- Continuous service capability at high temperatures of up to +100 °C
- Permanently watertight, strong welded joints

Product range

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

Further Information

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