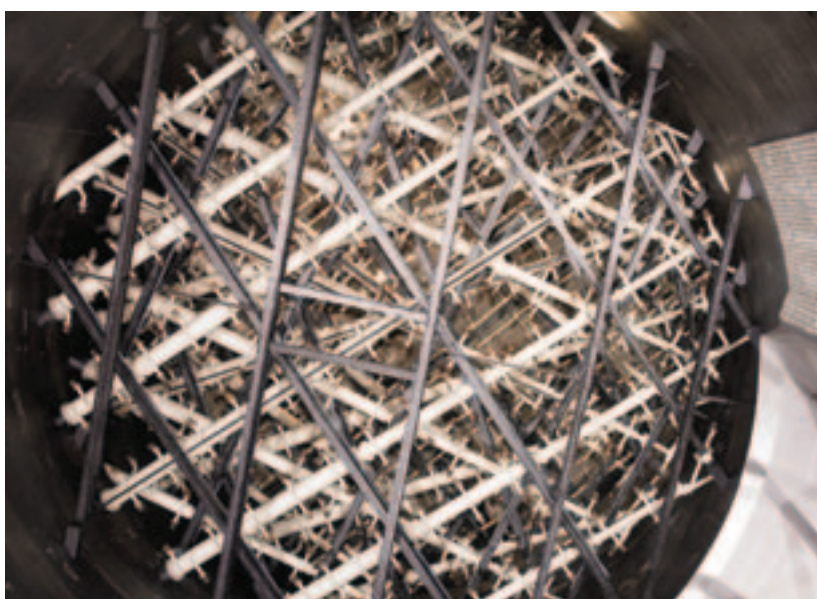


SIMONA



RWE Energie opts for SIMONA® PP-H 100 AlphaPlus



Looking into the nozzle levels from below gives some idea of the size of the washing towers. Four people were needed to assemble the individual pipe sections.

RWE Energie AG needed to renovate the flue-gas desulphurisation system at its Niederaußem power plant. In SIMONA® PP-H 100 AlphaPlus, it found not only a material that could replace the previously used rubber-coated steel pipes but a solution that is far superior in many different respects.

Project Summary

Project

Replacement of the flue-gas desulphurisation system at the Niederaußem power plant with nozzle lances made of SIMONA® PP-H 100 AlphaPlus

Requirements

- External and internal chemical and abrasive stress
- Media: HCl, SO₂, HF, washing fluid gypsum suspension, pH value 3–4
- Total solids: approx. 12 to 15 %, Operating pressure: approx. 0.5 bar
- Operating temperature: approx. 70 °C

Client

RWE Energie AG, Niederaußem Power Plant

Prime contractor

K & W Knäpper & Witt GmbH, Nordkirchen-Capelle

Subcontractor

ATEA GmbH, Ransbach-Baumbach

Plastics engineer

KTW GmbH & Co. KG, Ransbach-Baumbach

Installation project management

ATEA GmbH, Ransbach-Baumbach

Technical support

Applications Technology Department, SIMONA AG, Kirn

Products used

- SIMONA® PP-H 100 AlphaPlus pipes, d 110 – d 500, SDR 11, length = 5 m
- SIMONA® PP-H 100 AlphaPlus fittings: tees, reducers, flanges
- SIMONA® PP-DWU sheets

Project period

2004



Fig. from left to right: Pre-fabricated nozzle lance components; assembled nozzle level; extrusion weld seams of nozzle outlets

SIMONA® PP-H 100 AlphaPlus – the perfect choice for flue-gas desulphurisation systems

Initial situation

Flue-gas desulphurisation systems clean the power plant furnace gases of acidic and aggressive toxic substances such as HCl, SO₂ and HF gases with a pH-controlled washing fluid. The aggressive media attacked the existing rubber-coated steel pipes so severely that the pipes were heavily damaged by corrosion after just 5 to 8 years, resulting in a short service life and high costs.

Task

RWE Energie AG were looking for a new material to construct the nozzle lances, the key requirements being:

- higher operating reliability than the previously used steel
- outstanding resistance to chemical and abrasive stress, both externally and internally (HCl, SO₂, HF, washing fluid gypsum suspension)
- commercial advantages through a longer service life and excellent value

Solution

Extensive tests were carried out to check the suitability of stainless steel, GFRP (glass-fibre reinforced plastic), modified GFRP surfaces and SIMONA® PP-H 100 AlphaPlus. PP-H 100 AlphaPlus proved to be the ideal construction material, as it is resistant to the hydrochloric and sulphuric acids occurring in the absorption washers and also provides the pipes with a high wear resistance to internal and external abrasion.

During a two-week installation period, the pre-fabricated nozzle lances (specially designed supports and assembly components) were installed over a total of four levels. This was followed by installation of the droplet separators. The washer was recommissioned after just three weeks.

SIMONA® PP-H 100 AlphaPlus

Properties

- High viscosity in conjunction with improved rigidity
- High chemical resistance (very good in contact with many acids, alkaline solutions and solvents)
- Maximum stress crack resistance
- Corrosion resistance
- Good hydraulic behaviour thanks to smooth interior pipe surface (no deposits)

Range of products

- Pipes
- Fittings
- Fittings for electrofusion welding
- Solid rods
- Extruded and pressed sheets
- Profiles, welding rods, flanges and valves

Further information:

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