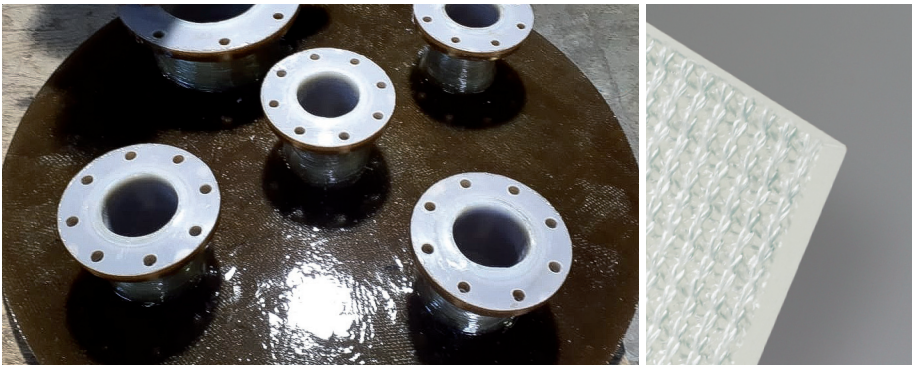
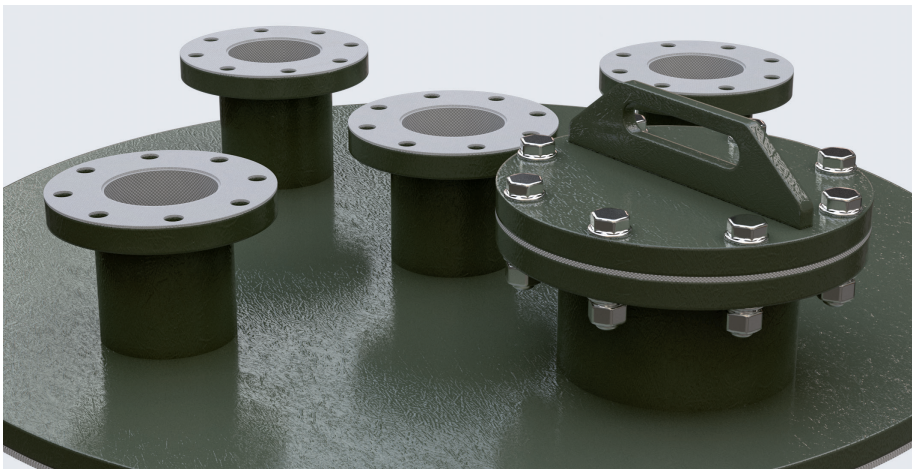


SIMONA® PFA protects reactor cover against wear and corrosion



Top, bottom left: Reactor cover with inliner made of SIMONA® PFA.
Bottom right: SIMONA® PFA sheet with glass backing.

The project at a glance

Project

GRP-reinforced cover with PFA inliner for a steel reactor

Requirements

- Excellent chemical resistance
- Outstanding thermal stability
- High stress crack resistance
- Excellent weather resistance
- Good anti-stick properties

Client

OOO "Perm Chemical Company",
Perm, Russia

Contractor

OOO "Novitek", Perm, Russia

Technical support

SIMONA AG, Technical Service Center,
Kirm, Germany

Products used

SIMONA® PFA-GK sheets, 2.3 mm thick
SIMONA® PFA-HP welding rod

Duration of project

1 year

OOO "Perm Chemical Company", a Russian chemical manufacturer, commissioned OOO "Novitek" to make a reactor cover for a steel reactor. A protective layer made of SIMONA® PFA-GK inside the new cover ensures that the latter withstands the demanding operating conditions of the chemical reactor. The excellent chemical and high temperature resistance of SIMONA® PFA-GK sheets prolong the service life of the reactor and at the same time minimise the need for maintenance work. As a result, down times were reduced and the efficiency of the production line was increased.



Specialised knowledge and skills are required for welding fluoroplastics such as SIMONA® PFA. The SIMONA Academy offers processing companies practical training sessions in which experienced technical experts present and teach the various methods.

SIMONA® PFA – fully fluorinated high-performance plastic for tough operating conditions

Initial situation

To protect against aggressive media, a steel reactor used by OOO “Perm Chemical Company” had been provided with a resistant enamel coating. However, on account of solid constituents such as iodine and salt crystals inside the reactor this thin protective layer was exposed to substantial wear stresses in the reactor cover area. As a consequence of the resulting corrosion damage, the steel components of the reactor had to be replaced frequently.

Task

To prevent future damage, OOO “Novitek” was commissioned to make a new, more resistant reactor cover. The customer opted for a dual laminate, consisting of a chemically resistant thermoplastic on the inside and a load-bearing GRP composite on the outside. The inner material had to withstand tough operating conditions.

Media: iodine, sodium bicarbonate, water, solids

Service temperature: +150 °C

Pressure: –0.5 bar to +0.6 bar

Apart from outstanding chemical resistance and good abrasion resistance, the requirements which the material had to satisfy also included high impact strength and thermal stability. In addition, the new approach had to prolong the useful life of the reactor in operation. On account of the demanding operating conditions, the basic prerequisites included high product quality with appropriate product documentation.

Solution

Owing to the aggressiveness of the chemicals being used and high thermal stress, the customer opted for an inner layer made of SIMONA® PFA with glass backing as an adhesion promoter. In practice-oriented exposure tests the material performed convincingly inside the reactor on account of its excellent chemical resistance and its outstanding thermal stability. From the very beginning SIMONA also supported the project in the form of technical advice and practical welding training sessions at the SIMONA Technology Centre, which is based at the company’s headquarters in Kirn.

Owing to Novitek’s high degree of processing expertise, the project was carried out quickly and a top-quality new reactor cover was made available to the client for a trial run. On account of the positive results, there are plans to use SIMONA® PFA in other production lines of the Perm Chemical Company.

SIMONA® PFA

Properties

- Excellent chemical resistance
- Outstanding thermal stability
- High stress crack resistance
- Excellent weather resistance
- Good anti-stick properties
- Many different processing capabilities

Fields of application

- Chemical installations
- Bioindustry and pharmaceutical industry
- Food production
- Power station engineering
- Mining
- Renewable energy

Product range

- Extruded sheets in thicknesses from 0.8 to 8 mm
- Extruded sheets with glass or aramid backing in thicknesses from 0.8 to 3.8 mm
- Welding rods in thicknesses from 3 to 4 mm

Further information

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