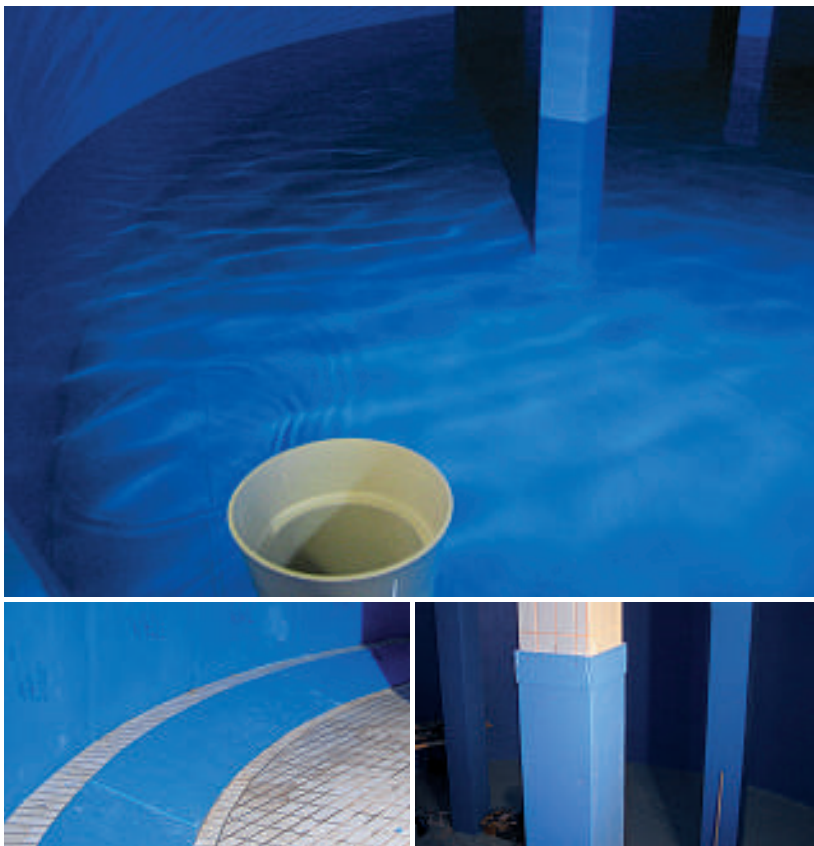


## Goodbye corrosion! Renovation of water storage tanks with high-performance plastics



The Bad Sobernheim drinking-water storage tank has a capacity of 2200 m<sup>3</sup>. The photo at the top shows the full drinking-water storage tank lined with SIMONA® PE sheets, light blue, 340. The photographs at the bottom show the water storage tank during the construction phase.

**Owing to increasing corrosion damage, Bad Sobernheim Municipal Works decided to repair and renovate the tiled drinking-water storage tank (HB III). By lining the tank with SIMONA® PE sheets, light blue, 340, engineers were able to eliminate hydrolytic corrosion permanently.**

### Project Summary

#### Project

Repair and renovation of Bad Sobernheim drinking-water storage tank with SIMONA® PE sheets, light blue, 340, and installation of a piping system made of SIMONA® PP-H 100 AlphaPlus pipes and fittings

#### Requirements

- Long-term corrosion resistance
- Firmly bonded joints

#### Client

“Verbandsgemeindewerke Bad Sobernheim” Municipal Works

#### Prime contractor

gja – Gesellschaft für Ingenieur- und Apparatebau mbH, Buchholz-Mendt

#### Technical support

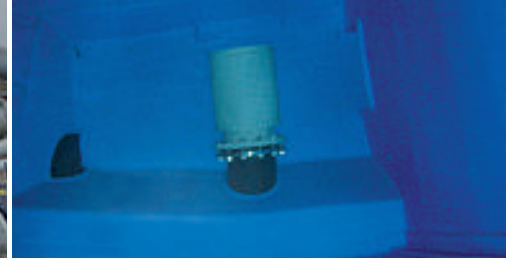
Pipe Project Group, SIMONA AG, Kirn

#### Products used

- SIMONA® PE sheets, light blue, 340  
formats: 2000 x 1000 mm,  
3000 x 1500 mm, 4000 x 2000 mm;  
thicknesses: 12 and 20 mm
- SIMONA® PP-H 100 AlphaPlus  
SDR class 17.6 d = 63, 90, 225,  
280 and 315 mm
- SIMONA® PP-H 100 AlphaPlus  
bends, tees, elbows, stub flanges  
and loose flanges SDR class: 17.6

#### Project period

2004



Illustrations from left to right: Corroded joints of the tiled tank; PP-H 100 AlphaPlus piping system in the pre-chamber; pump sump with discharge strainer

## PE sheets, light blue and PP-H 100 AlphaPlus piping systems – a dream team for the renovation of water storage tanks

### Initial situation

Most drinking-water storage tanks constructed in the 60s and 70s were designed as concrete box structures in the form of round or rectangular tanks. The surfaces coming into contact with water largely consist of cement-bound building materials or tiles. Over the course of time, both the concrete and the joints have been subject to attack by hydrolytic corrosion. The associated surface irregularities act as a culture medium for growth of micro-organisms, thus increasing the risk of microbial contamination of the drinking water.

### Task

Bad Sobernheim Municipal Works sought a material with the following advantages for lining the drinking-water storage tank:

- Corrosion resistant in the long term thanks to smooth surfaces
- Firmly bonded joints preventing penetration of tank water and condensation into the masonry structure
- Financial advantages thanks to longer service life and reduced maintenance costs

### Solution

Visible corrosion points were initially repaired at various points in order to stop the corrosion process in the long term while retaining the existing basic structural fabric of the water chamber. The light blue SIMONA® PE sheets were then doweled in place and welded together by a process of firm bonding.

A rim edge strip attached in the upper tank area is sealed to prevent penetration of tank water behind the fitted sheets. Owing to the firm bond of the permanently tight welded joints, the newly fitted sheets form an absolutely impenetrable barrier that also protects against water from the outside. The inspection pipe arranged beneath the pump sump discharges condensation as well as water entering from the outside into the pre-chamber. This means that potential leaks in a new catch pan system can be assessed with maximum efficiency.

### SIMONA® PE light blue, 340

#### Properties

- High chemical resistance
- Excellent processing parameters
- Proven not to form a nutrient medium for micro-organisms pursuant to DVGW regulations, Code of Practice W 270. No possibility of bacterial growth.
- Complies with the KTW Guidelines of the German Federal Health Authority

#### Range of products

- Sheets: 2000 x 1000 mm, 3000 x 1500 mm, 4000 x 2000 mm, in thicknesses 12 and 20 mm
- Welding rod: round, 4 mm

### SIMONA® PP-H 100 AlphaPlus

#### Properties

- High chemical resistance
- High corrosion resistance
- Good hydraulic behaviour thanks to smooth interior surfaces

#### Range of products

- Pipes: d = 10 to 1000 mm
- Fittings
- Electrofusion-weldable fittings
- Extruded and pressed sheets
- Profiles
- Welding rods

### Further information:

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