

SIMONA supplies end-to-end solution for renewal of elevated water tank



Top: PE piping system in the front chamber of the tank; Bottom: Elevated water tank lined with SIMONA® PE 340 sheets; Ventilation pipe made of SIMONA® PP-H AlphaPlus®

The Water Utilities Association of Untere Niddatal decided to renew a local elevated water tank in order to maintain the quality of drinking water well into the future. The chlorinated rubber with which the tank had been coated was beginning to peel off the interior walls, and the cement plaster was gradually disintegrating. Lined with SIMONA® PE sheets – light blue 340 –, the tank is now fit for purpose again and the quality of drinking water has been safeguarded for many years to come.

The project at a glance

Project

Rehabilitation of “Schäferköpfe” elevated water tank with SIMONA® PE light blue 340 sheets and installation of piping system comprising SIMONA® PE/PP-H AlphaPlus® pipes and fittings

Requirements

- Permanent corrosion resistance
- Integral, watertight joints

Client

Zweckverband für die Wasserversorgung des Unteren Niddatal, Karben

General Contractor

IKS Kunststoff- und Stahlverarbeitungs GmbH, Ingelheim

Engineers

Ingenieurbüro Lang,
Inhaber Dipl. Ing. Markus Jurka,
Wiesbaden

Technical Support

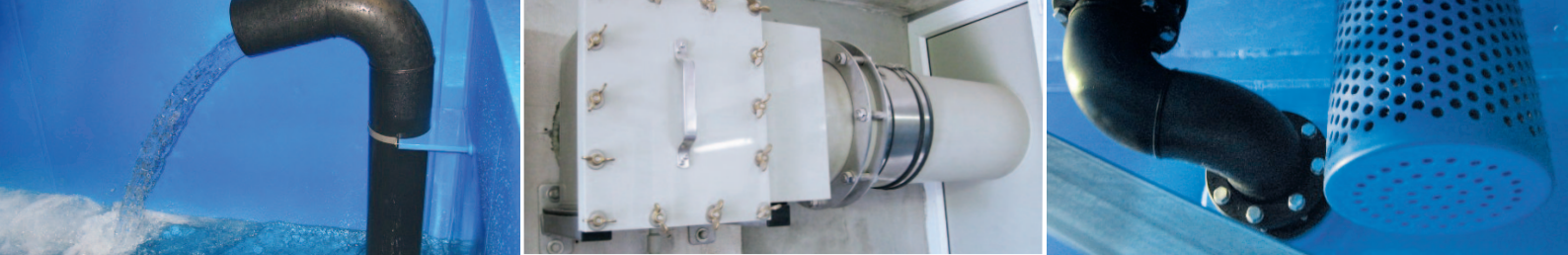
SIMONA AG, Piping Systems, Kirn

Products used

- SIMONA® PE 340 sheets light blue (size: 4000 x 2000 mm/ strength: 12 and 20 mm)
- SIMONA® PE and PP pipes and fittings (SDR 17)
- IKS sieve unit PE, air filter unit PP-H, insect screen PP

Project duration

2009/2010



From right to left: Feed pipe made of PE-HD, SDR 17; Air filter unit made of PP-H; Sieve unit and SIMONA® PE fittings

SIMONA products for clean drinking water

Initial situation

Due to the age of the tank and regular cleaning required to maintain operations, the chlorinated rubber paint was beginning to peel off the interior walls or had been washed away completely. As a result, the subsurface of cement plaster had been exposed to the water and was gradually disintegrating. This could cause microbiological problems, potentially affecting the overall quality of drinking water.

Task

In order to prevent the quality of water from deteriorating any further, the decision was made to renew the tank interior. Due to the unfavourable adhesive properties of the interior structure, conventional coatings were not an option. The liner material of the elevated water tank had to meet the following requirements:

- Smooth surfaces for permanent corrosion resistance
- Integral, watertight joints to prevent penetration of tank water and condensation into masonry
- Long service life and low operating costs for greater cost-effectiveness

Solution

Welded together to create a watertight tank, the sheets prevent water stored in the tower from penetrating the masonry, thereby helping to protect the structure as a whole. Any condensation or external water penetrating the structure is discharged to the front chamber via a pipe located below the pump sump. The new tank lining system can also be tested for leakage. The distances required for the plug system used to attach the PE sheets with a strength of 12 mm were chosen such that the sheets are positioned closely to the concrete wall over as much of the surface as possible. A full-surface plug system helps to alleviate much of the strain on weld seams and prevent critical tensile stresses due to temperature changes. In addition to a long service life, the SIMONA® PE liner offers tangible financial benefits, such as lower maintenance costs; PE sheets can be cleaned quickly and efficiently without the use of chemical detergents.

SIMONA Products

SIMONA® PE light blue 340

Properties

- High chemical resistance
- Excellent processing properties
- Provides no breeding ground for microorganisms, according to DVGW Regulations, Standard W 270
- No risk of contamination
- Fulfils Contact with Drinking Water recommendations of BfR

Product range

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

SIMONA® PP-H AlphaPlus®

Properties

- High chemical resistance
- High corrosion resistance
- Good hydraulic properties due to smooth pipe interior

Product range

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

Further information

SIMONA AG

Technical Service Center
Phone +49 (0) 67 52 14-587
tsc@simona.de

IKS Kunststoff- und Stahlverarbeitungs GmbH

Otto-Hahn-Str. 8
55218 Ingelheim