Project Report/September 2023

StoConcrete Protect Resist SP 250 for biogenic sulphur acid attack - exposure class XWW4

The Bachgau waste water treatment plant is part of the Großostheim sewage treatment plant (district of Aschaffenburg, Germany). The sewage treatment plant has been treating the waste water since 1972. Extensions were added in 1995 and 2001 in order to cope with the waste water load of industry, trade and around 35,000 inhabitants. In the summer of 2023, the digestion tower of the municipal waste water treatment plant in Bachgau had to be refurbished. The tower was emptied and cleaned to renew the internal coating.

In a closed facility such as a digester, biogenic sulfuric acid corrosion can occur. This corrosion process takes place without air and is promoted by bacteria, among other things. This can lead to high erosion rates on the concrete surface inside the container.

The team of experts opted for the StoConcrete Protect Resist SP 250 EP coating system for the repair of around 1,000 square meters of these heavily stressed concrete surfaces (exposure class XWW4) inside the digester.

The chemically highly resistant surface protection system is applied after affected areas were repaired with StoCretec mortars beforehand. The system has been tested for its resistance to biogenic sulphur acid attack in accordance with DIN 19573: It meets the requirements for adhesive tensile strength and liquid tightness. In addition, the test areas showed no changes at all on the surface, no detachments or cracks. The external testing institutes therefore confirmed the durability of the system structure for exposure class XWW4 respectively XBSK.

In particular, work inside a digestion tower poses a major challenge for the specialist applicator. The coating product of the system, StoPox SP 250, is characterised by its high level of stability. The material can be processed by rolling, trowelling or airless spraying. There are almost no limits, because the treatment plant coating can be applied horizontally, vertically and even overhead.

Moreover, StoConcrete Protect Resist SP 250 has a special “wear control” feature: the coating is applied in two layers. The first layer is tinted reddish brown, the second layer has a grey colour shade. In this way, the applicator obtains a pore-free and even layer thickness, which permanently protects the substrate from attacking media. During cleaning or maintenance work, the specialist can also clearly see whether the coating is still completely intact or whether there are defects. If red-brown colour shade spots become visible in the coating after many years of use, the top layer will probably need to be checked and reworked.

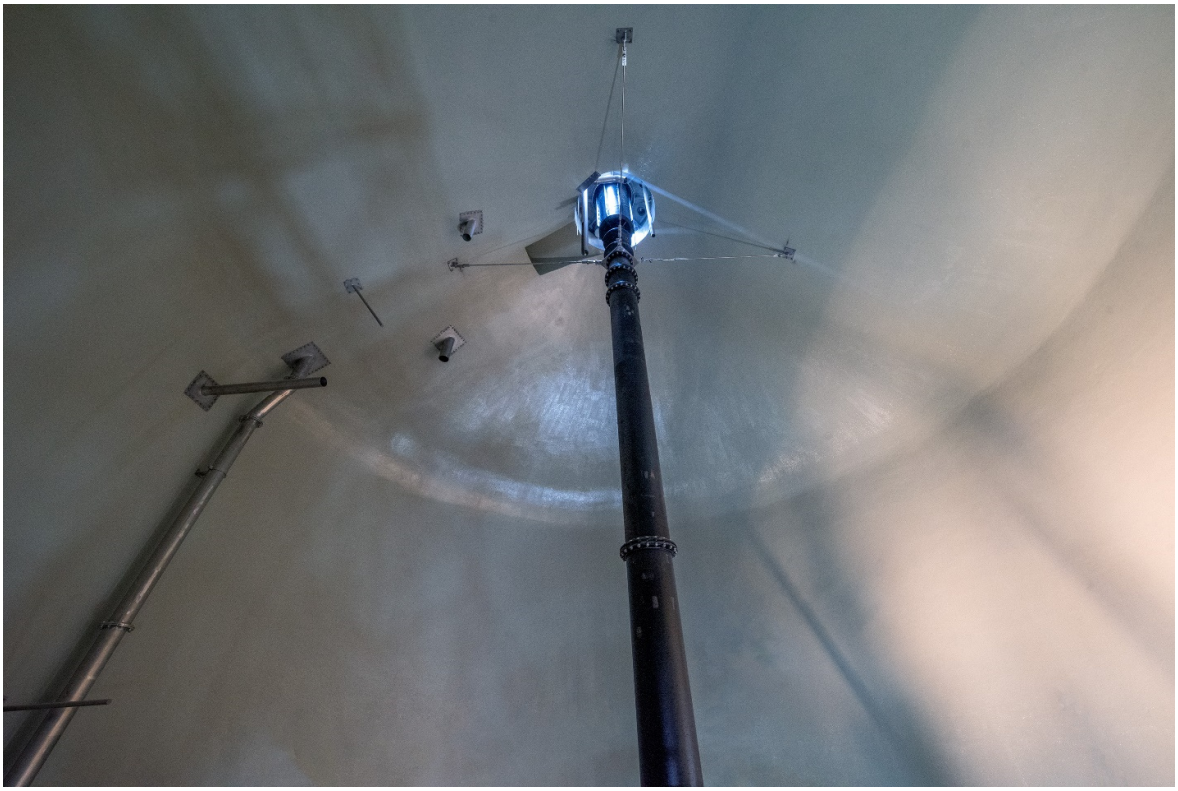
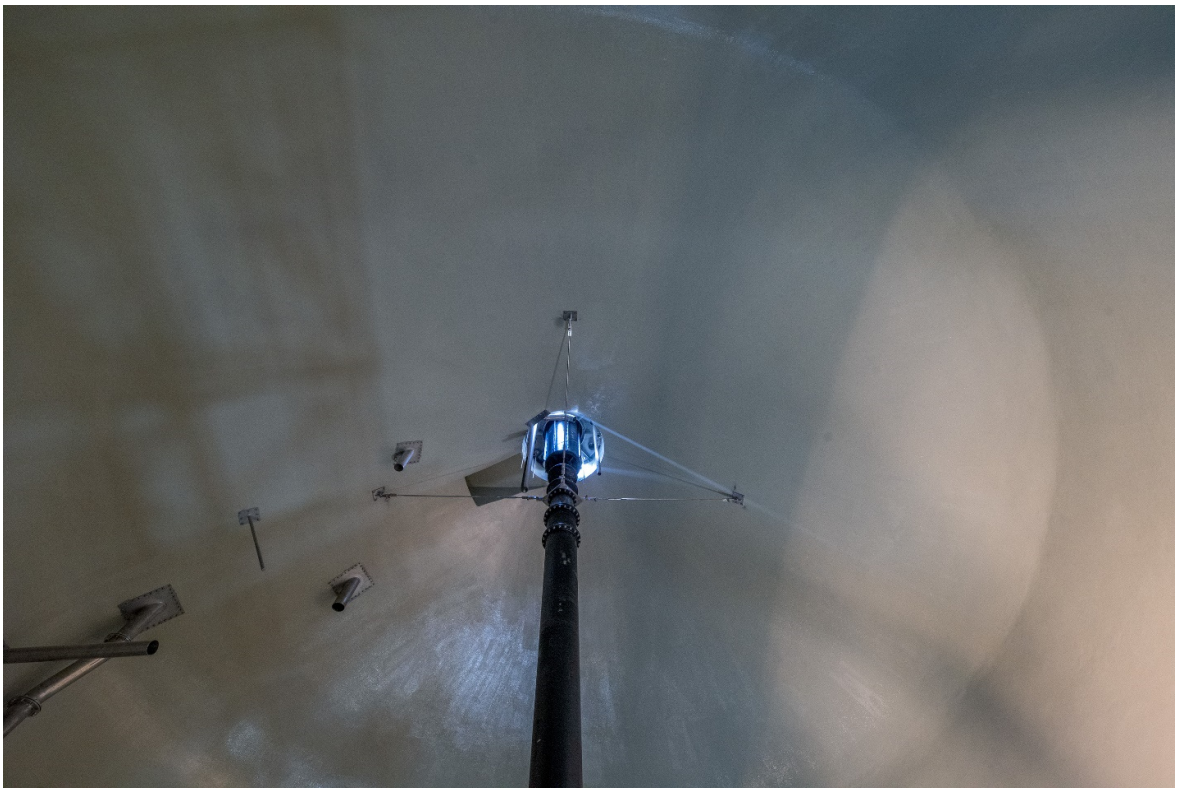
The primer of the system is StoPox SP 250. Due to its hydrophilic formulation, it can also be applied to slightly damp substrates and still achieves very good adhesion.

Properties of **StoConcrete Protect Resist SP 250**

- EP coating build-up for the protection of concrete members in waste water treatment plants with chemical impact in the exposure classes XWW1 - XWW4 according to DIN 19573:2016-3, biogenic sulphur acid attack
- Coating of mechanically and chemically impacted concrete areas, interior and exposed to the elements outdoors
- High resistance to sulphate attack and to sulphuric water
- Chemical resistance to a high number of chemicals
- High CO_2 impermeability
- Impermeable to liquid
- Large number of long-standing references
- Application by plastering trowel and roller sleeve, or airless sprayer
- System in accordance with EN 1504-2

Who & What

Project:	Digestion tower Waste Water Treatment Plant Bachgau, DE
Investor:	Markt Großostheim, Landkreis Aschaffenburg, DE
Planner:	Dr. Born - Dr. Ermel GmbH, Niederlassung Frankfurt, DE
Applicator:	Wayss & Freytag Ingenieurbau AG, Frankfurt, DE
Realisation:	7/2023
StoCretec Competence:	**StoConcrete Protect Resist SP 250** Filler and levelling coat — StoCrete TF 250 Primer — StoPox 452 EP Coating — StoPox SP 250

Photo: http://klaerwerk-bachgau.de/Ueber-das-Klaerwerk-Bachgau

(Photos: Axel Stephan for StoCretec)