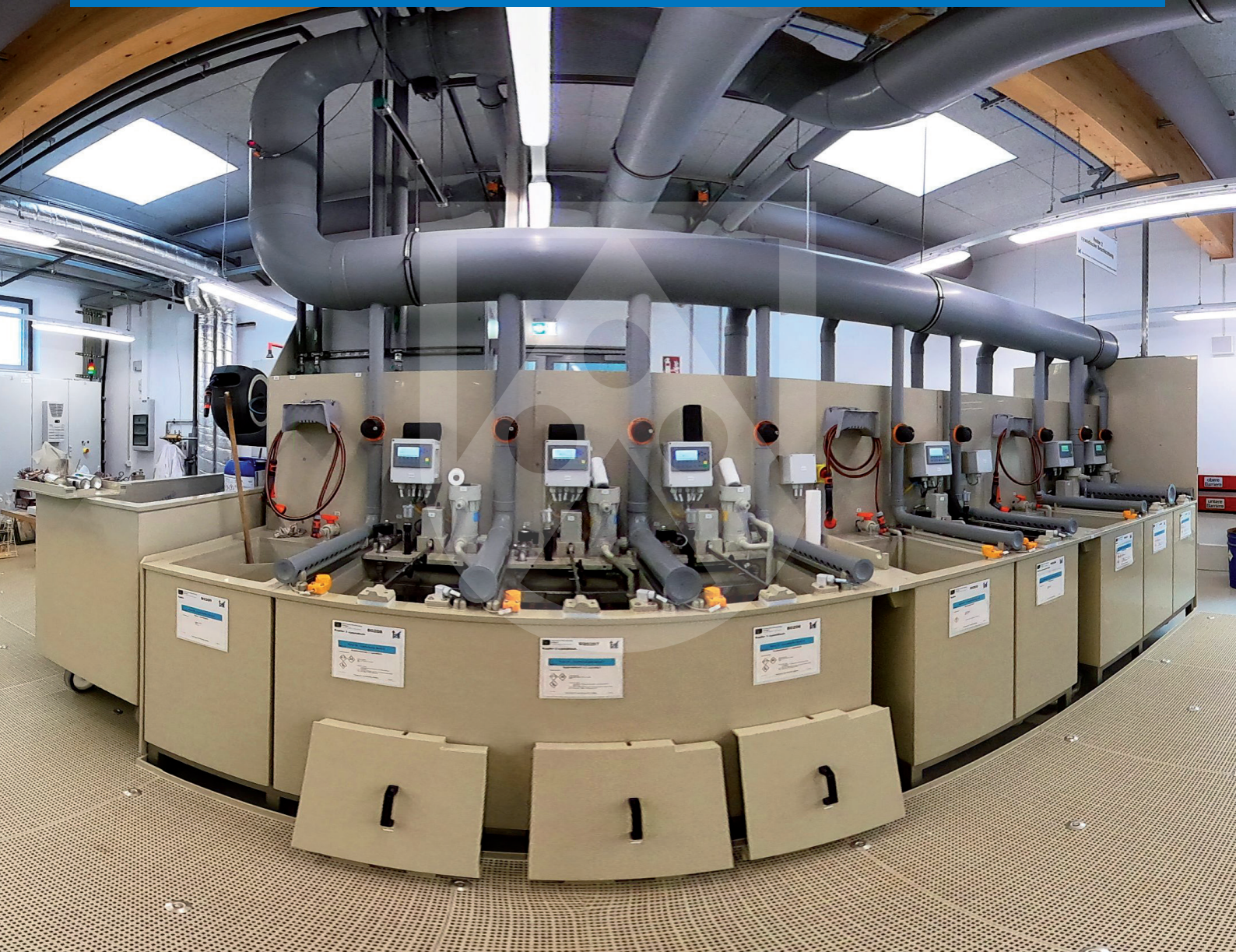


Polystone® CubX®

Project Report

Electroplating plant manufactured entirely without steel reinforcement using Polystone® CubX®

 Chemical processing industry





Polystone® CubX® makes the difference

Electroplating plant installed without steel reinforcement

More than 100 plastic tanks are lined up on approx. 230 square metres at the Technical College of Applied Sciences (TBK) in Solingen. They form one of the most modern and largest electroplating plants for training purposes in Germany. Specialists in electroplating and surface technology from all over Germany will learn their trade at the electroplating plant, which was completed in 2022. It is not just the new technical training options that are different, the manufacturer Oberflächen- & Elektrotechnik (OTE) Scheigenflug GmbH has also opted for a special material for tank and container construction. Instead of a solid plastic sheet, OTE built the tanks from the twin-wall sheet Polystone® CubX® from Röchling Industrial.



The Technical College's new electroplating plant: OTE produced a total of 110 tanks with the support of Röchling



This results in an innovative construction sheet that combines a low, user-friendly dead weight with very high longitudinal and transverse stiffness

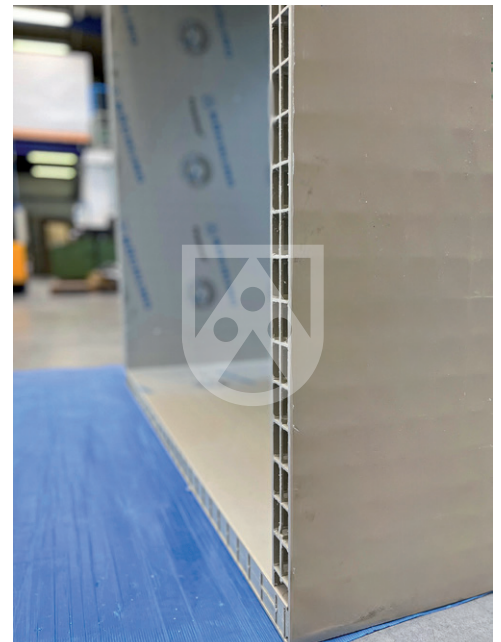
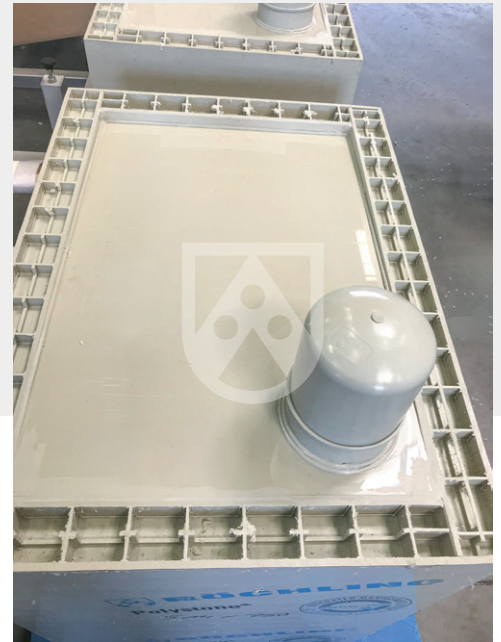
Matthias Klein, Product Management Röchling Industrial

The special design of Polystone® CubX® enables construction without steel reinforcement

“The material was a real stroke of luck for us. The construction contract for the new electroplating plant at TBK in Solingen was awarded through an EU-wide tender. By using twin-wall sheets, we were able to bid more economically than others and that is how we were awarded the contract,” recalls Claudia Wagner, general manager at OTE Scheigenflug. OTE has long-standing experience in the design of chemical tanks and containers made of solid plastic sheets with steel reinforcements. The company used the twin-wall sheet by Röchling Industrial for the first time for this project. The special design of this sheet permits a design without steel reinforcements, which yielded the decisive economic advantage.

Special twin-wall sheet developed for tank and container construction

Polystone® CubX® is a tank construction sheet having a cross-ribbed inner grid, which makes manufacturing rectangular tanks much faster and easier. The special characteristics of the product are provided by the special sheet design, which combines a very high longitudinal and transverse stiffness in the sheet. “Polystone® CubX® consists of a homogeneous right-angled (orthogonal) grid on the inside, which is welded to two sheets on the outside, forming the surface of the sheet. This results in an innovative construction sheet that combines a low, user-friendly dead weight with very high longitudinal and transverse stiffness,” explains Matthias Klein, Product Management Röchling Industrial. At the same time, owing to the proven chemical resistance of Röchling materials, the sheet specially developed for tank construction is suitable for permanent contact with a variety of chemical media. The significant reduction (up to 100 percent) of the steel reinforcements otherwise required for rectangular tanks made of thermoplastics also entails enormous time savings in tank and container manufacture.



Tank made of Polystone® CubX®: The twin-wall sheet CubX® makes the design possible without steel reinforcements

RITA® software is used for the structural analysis of tanks

OTE produced a total of 110 rectangular tanks made of Polystone® CubX® without steel reinforcements for the TBK in Solingen. The school's new electroplating plant covers all processes in the field of surface coating. In conjunction with Röchling experts, OTE's tank and container builders computed the individual tanks using RITA® software developed by Röchling. RITA® is a tank-and-container computation software that is used for the structural analysis of thermoplastic tanks and containers. "The cooperation saved us a lot of time in the design and, with the help of RITA®, we were able to supply the TBK with uniform tanks made of one material throughout," says Wagner.



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Claudia Wagner, Prokuristin OTE Scheigenflug



The material is characterised by easy handling and good weldability: Polystone® CubX® by Röchling Industrial

Key benefits include cost reduction, low weight, automatic insulation and elimination of reinforcement

Overall, OTE was able to save around 30 percent of the costs in terms of material and time when using Polystone® CubX® compared to a solid plastic sheet. "In addition to the cost reduction, the decisive advantages for us are the lower weight, the thermal insulation of the twin-wall sheet and the complete elimination of reinforcements. The CubX® sheets were easy to handle during installation and easy to weld. An ideal material for us, which we will also use for future projects," explains Wagner. Polystone® CubX® has been a reliable material for chemical tank and plant construction for years and is used in electroplating plants, steel pickling plants, wastewater technology, treatment plants, compact thickeners and tank and container installations, among others.

Project overview

Electroplating plant made of Polystone® CubX®



Starting situation

- Design and manufacture of an electroplating plant without steel reinforcement
- Dimensions: 110 plastic tanks on a surface area of 230 m²



Requirements

- Resistance to aggressive chemical media
- Economical production without steel reinforcement
- Time-saving tank design and production



Material used

- Polystone® CubX®



Result

An electroplating plant with 110 plastic tanks made of Polystone® CubX®. Thanks to the tank construction panel's cross-ribbed inner grid, the designers saved around 30 percent of the costs in terms of material and time expenditures compared to solid plastic sheets.



Project partners

Röchling Industrial SE & Co. KG

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Oberflächen- & Elektrotechnik (OTE)

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www.otescheigenpflug.de

The company Oberflächen- & Elektrotechnik (OTE) Scheigenpflug GmbH was founded in 1998. As a partner for system construction and conversion in the field of electroplating and surface technology, the company designs, supplies and installs systems and accessories all over the globe.

Plastics for chemical tank construction

Röchling thermoplastics have been in use for decades in the chemical processing industry as materials for plants and tanks. Röchling provides a complete system consisting of sheet material, square tubes, U-profiles and different welding rods, the tried-and tested tank calculation program RITA®, and expert advice in selecting the correct material. Furthermore, Röchling has a comprehensive database and many years of experience with chemical resistance and the successful use of thermoplastics. The most important areas of use are tanks for the storage of liquids, galvanic plants, steel pickling plants, water treatment systems, exhaust air cleaning plants and ventilation plants.



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