

Polystone® G CubX®

# Project Report

Double-walled poly tank made of Polystone® G CubX®

 Chemical processing industry



# Double-walled poly tank made of Polystone® G CubX®

There are two large tanks in the production hall of G&H Kunststofftechnik GmbH & Co. KG in Sprockhövel. Plastics specialists use a practiced hand to cut a large twin-wall sheet and then weld it together. Here, G&H Kunststofftechnik manufactures the new double-walled poly tank made of Polystone® G CubX®. The poly tank was developed as a mobile tank system for storing liquids. A high level of operational safety of the tanks is the top priority for Randolph Gödecke, Managing Director of G&H. When it comes to the material, he relies on Polystone® G CubX® from Röchling Industrial, a sheet with an inner cube structure developed for chemical tank and plant construction.



## The goal: greater operational reliability

With a length of more than 7 metres, and a width of 2.5 meters, the poly tank has a capacity of **30,000 litres**. The double-walled construction made of a **60 mm thick Polystone® G CubX® sheet**, equipped with **8 mm thick top layers**, ensures particularly safe storage of liquid media in contrast to the conventional 6 mm. In order to be able to ensure, in accordance with WHG (Water Resources Act), that the hollow chamber sheet between the inner and outer cover layers can be fully checked, the inner grid of the Polystone® G CubX® sheet was processed accordingly for this application and thus enables the tank to be leak-tested by vacuum test. As a leading specialist in tank construction, **G&H Kunststofftechnik** has been a reliable partner for decades. With the new poly tank, the company now has a tank with even greater operational reliability in its portfolio.



## The material: Polystone® G CubX®

### Reliable partner for tank construction

Polystone® CubX® is a tank construction sheet with an inner cube structure, with which rectangular tanks can be constructed much more quickly and easily.

The distinctive feature lies in the special sheet design, which combines a very high longitudinal and transverse rigidity of the sheet. Inside, Polystone® CubX® consists of a homogeneous, right-angled (orthogonal) inner cube structure that is welded to two sheets that form the surface of the whole sheet. The result is an innovative construction sheet that combines a low, easy-to-handle dead weight with very high longitudinal and transverse rigidity.

At the same time, the sheet, which was specially developed for tank construction, is suitable for permanent contact with a large number of chemical media thanks to the proven chemical resistance of Röchling materials. The strong reduction (up to 100%) of the steel reinforcements otherwise required for rectangular tanks made of thermoplastic also leads to an enormous time savings in tank production.

### Years of cooperation

“It wasn’t just our trust in the material that was decisive in this project. We have been working with Röchling Industrial for years, and the material Polystone® (PE) has proven itself in the construction of our tanks,” says the G&H Managing Director. Together with the Röchling experts for chemical tank construction, the G&H designers have developed the new double-walled poly tank.



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Randolf Gödecke, G&H Managing Director



## Top layers made of Polystone® G B 100-RC

G&H chose the material Polystone® G B 100-RC from Röchling Industrial as the inner cover sheet for contact with liquid and sometimes aggressive media. The plastic is a polyethylene with **excellent resistance to chemical media** and high resistance to stress cracking – RC stands for Resistant to Crack. The plastic is used worldwide in process and storage tanks with media that trigger stress cracks.

Gödecke explains: “Our experience has shown that Polystone® G B 100-RC is very well suited for the chemical processing industry. The material is suitable for permanent contact with aggressive media. We opted for the blue variant for the inner top layer so that we can identify any dirt or damage more quickly.” As the outer top layer, G&H uses the material Polystone® G B 100-RC in black from Röchling. Both material variants make a significant contribution to the operational reliability of the new poly tank.

## Sustainability is an important strategic area

As a plastics expert, Randolph Gödecke knows that we have a special responsibility when it comes to sustainability: “Sustainable action is very important to us in our cooperation, and in Röchling we have found the right partner in this respect too”. With the Röchling-BioBoom® and Röchling-ReLoop® product families, Röchling Industrial is continuously expanding its portfolio of bioplastics and high-quality recyclates. Fossil-based plastics also contribute to resource conservation in many applications during use. The goal at Röchling Industrial: to reduce the ecological footprint and increase sustainability in the customer’s industries.

### Röchling BioBOOM®

With the Röchling-BioBoom® product family for bioplastics, the company promotes the use of bio-based raw materials and thereby reduces the use of fossil raw materials. Several Röchling locations are already certified according to the international sustainability standard ISCC Plus for mass-balanced bioplastics. Further certifications are planned.

### Röchling ReLOOP®

With Röchling-ReLoop® for high-quality recyclates, Röchling conserves valuable resources and closes material cycles. The company is constantly working to increase the percentage of recycled material. Together with customers, material flows are managed even more efficiently, and individual recycling cycles are set up.

# Project overview

New double-walled poly tank made of Polystone® G CubX®



## Initial position

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Design and manufacture of a double-walled poly tank for liquid media.  
Dimensions: length 7,350 mm, width 2,550 mm, height 2,700 mm  
Capacity: 30,000 litres (30 m<sup>3</sup>)



## Requirements

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- Resistance to aggressive chemical media
- High operational reliability
- Easy processing and weldability



## Material used

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- Polystone® G B 100-RC blue
- Polystone® G B 100-RC black



## Result

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A high level of operational reliability thanks to the Polystone® G CubX® sheet made of the materials Polystone® GB 100-RC blue and Polystone® GB 100-RC black and the construction with monitoring groove.



## Project Partner

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### **Röchling Industrial SE & Co. KG**

Röchlingstr. 1 | 49733 Haren | Germany  
[www.roechling.com/industrial](http://www.roechling.com/industrial)

### **G&H Kunststofftechnik GmbH & Co. KG**

Stennert 14 | 45549 Sprockhövel | Germany  
[www.gh-kunststofftechnik.de](http://www.gh-kunststofftechnik.de)

The company, founded in 1998, is one of the leading specialists in the construction of special plastic equipment. The central business areas include tank construction, pipeline construction and apparatus construction as well as ventilation technology. At the Sprockhövel site, state-of-the-art systems are created based on the latest construction technology, individually tailored to customer requirements.

## Plastics for chemical tank construction

Röchling thermoplastics have been in use for decades in the chemical 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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