

PPG SIGMASHIELD™ 460 and PPG PHENGUARD™

Over 20 years' service with no major repairs for ice-going tankers carrying a wide range of cargoes

Case study



The Customer

TB Marine in Hamburg, Germany.

The Vessel

Four Chemical/Oil Tankers: the Rhonestern, Wolgastern, Weichelstern and Themsestern.

The Challenge

These tankers operate in ice-going areas and needed a robust protective coating with excellent abrasion- and impact resistance on the bow area. The vessels also required a tank coating system with optimal resistance for a wide range of cargoes.

The Solution

PPG SIGMASHIELD™ 460 on the bow area and the PPG PHENGUARD™ system on the cargo tanks.

The Benefits

The SIGMASHIELD 460 coating delivered lower cost repairs during dock times, quicker preparation and fewer spot blasting areas, reduced corrosion, less damage and better performance. The PHENGUARD tank coating improved the vessels' wide cargo flexibility, which also helped to maximize revenue-earning potential.

The Result

After 21 years in service, the vessels only needed some small repairs and the coatings are still in excellent condition.

The Customer

TB Marine is a specialist in the transportation of liquid oil, products and chemicals. Based in Hamburg, the company was founded by Steffen Thate and Stephan Bracker (TB).

Since then, the company has grown into a medium-sized niche player in the energy market with technically highly sophisticated vessels serving the transport needs of all major oil companies and oil traders. In addition to chemical/oil tankers, TB Marine offers 10 container ships and is further expanding its fleet to meet demand.

TB Marine is fully recognized in the tanker industry for fulfilling the highest management standards (TMSA = Tanker Management Self Assessment) and for being able to sign contract of affreightments.

The Challenge

The Rhonestern, Weichelstern, Wolgastern and Themsestern are Chemical/Oil tankers built in 1999 and 2000 with a gross tonnage of 14,400 tons.

The vessels operate in ice-going areas and needed a robust protective coating with excellent abrasion- and impact resistance. In addition, a tank coating system with optimal resistance for a wide range of cargoes was required.



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The Solution

After detailed assessment of the vessels and the customer's exact requirements, we proposed using the PPG SIGMASHIELD 460 epoxy coating on the bow area and the PPG PHENGUARD tank coating system on the cargo tanks.

The Benefits

PPG SIGMASHIELD 460

A two-component, high-solids, glass-flake reinforced polyamine adduct epoxy coating, which delivers the benefits of superior mechanical and corrosion resistance as a result of the combination of epoxy resin and hardener with the addition of glass flakes. The coating produces lower cost repairs during dock times, quicker preparation and fewer spot blasting areas, reduced corrosion, less damage and better performance.

Key Features and Benefits

- Excellent abrasion- and impact resistance
- Suitable for use on ice-going vessels
- Excellent resistance to corrosion
- Long-term protection for areas subject to heavy wear and tear
- Resistant to splash and spillage of a wide range of chemicals
- Very low water permeability due to glass-flake barrier

PPG PHENGUARD system

A versatile three-coat system that has consistently given shipowners the ability to carry an exceptionally wide range of cargoes, including highly aggressive loads such as methanol, EDC and fatty acids. Consequently, this extensive cargo flexibility has helped to maximize the vessel's revenue-earning potential.

Key Features and Benefits

- Excellent resistance to a wide range of organic acids, alcohols, edible oils, fats (regardless of free fatty acid content) and solvents
- Maximum cargo flexibility
- Low cargo absorption
- Good resistance to hot water

The Result

The customer was impressed with the excellent performance of our coatings, which were applied initially in 1999 and 2000. As a result of the system's long-term protection, no major refurbishment was needed since the original application, apart from some small repairs during dry dockings in later years.

After 21 years in service, the coatings are still in very good condition despite the tankers trading in very demanding ice-going areas and carrying a wide range of cargoes, including highly aggressive loads.



The Rhonestern



Tank bottom of the Rhonestern after applying 3 layers of PPG PHENGUARD



Dry docking of Rhonestern in 2020 after repair work is completed

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