

PPG SIGMASHIELD™ 1200

Survey shows no damage to hulls on icebreaker vessels

Case study



The Customer

Caspian Offshore Construction

The Location

Kazakhstan, Aktau

The Challenge

It was difficult to plan the dry dock repair for our customer's icebreakers due to the requirement for a twin-feed spray pump to apply a competitor's product in order to protect the underwater hull from the impact of ice

The Solution

PPG SIGMASHIELD 1200

The Benefits

PPG's durable coating is ideally suited for tough, ice-going environments. Another key advantage is that the PPG SIGMASHIELD 1200 coatings can be applied by cold, single-feed airless spray equipment, as opposed to the hot, twin-feed system specified and used by the competitor.

The Result

After a diving survey, the customer was satisfied with the performance of the PPG SIGMASHIELD 1200 coating following operations in ice-going conditions, which showed no damage on the hull's vertical sides as a result of ice impact

The Customer

Established in 2003, Caspian Offshore Construction LLP (COC) is a 100% privately owned Kazakhstan entity. COC's own fleet currently consists of 19 vessels (the majority of which were recently built in leading European shipyards). The total fleet, which is operated and managed by COC, numbers about 40 vessels.

The company has an extensive fleet of offshore support vessels and offers a wide range of marine offshore support services, including the management, operation and maintenance of marine vessels, as well as the supervision of new-builds and the modernization of existing vessels.

The Challenge

The main issue was the problem in planning the scheduled dry dock repair for the icebreakers as the customer had specified the need for a twin-feed spray pump to apply a competitor's product to protect the hulls from the impact of ice. It is difficult to find a shipyard in the region with a twin-feed spray pump, which presents a problem for a shipowner needing to apply specialized products from competitors.





The Solution

As a result of the application issues on this project, we converted the customer to implement a PPG solution. The four icebreakers, Mangystau-1, Mangystau-3, Mangystau-4, Mangystau-5, regularly sail in heavy ice conditions. Therefore, we recommended the highly resilient PPG SIGMASHIELD 1200 coating to provide optimal underwater hull protection. Under normal conditions, the PPG SIGMASHIELD 1200 coatings can be applied by cold, single-feed airless spray equipment, as opposed to the hot, twin-feed system specified and used by the competitor.

Our PPG SIGMASHIELD 1200 coating is based on a very hard filler composition, providing excellent anti-abrasion properties built on a highly cross-linked phenolic epoxy technology, further extending the service life of the coating by greatly increasing the creep resistance.

The Benefits

The PPG SIGMASHIELD 1200 coating is the ideal solution for ice-going vessels offering easy application, maximum abrasion resistance, and damage propagation control. Ice is unquestionably the main hazard for a hull's outer shell coating. This proven, durable coating has a well-established, global track record in protecting ice-going vessels operating in such potentially destructive situations.

Key benefits:

- Suitable for new-build, and maintenance and repair
- Outstanding impact- and abrasion resistance; smooth surfaces promote fuel savings
- Excellent cathodic protection and creep resistance
- Standard- and low-temperature version for enhanced curing performances
- Excellent application properties; also possible in winter conditions
- Single-coat application using standard equipment
- Easy maintenance and repair
- Excellent creep resistance, reducing size (and hence cost) of repair areas
- Solvent-free technology – no VOC emissions
- Reduced explosion risk and fire hazard
- Recognized by Lloyd's Register as an abrasion-resistant ice coating
- Recognized by Aker as a low-friction surface coating for ice breaking ships

The Results

Following a diving survey of the vessels after operations in harsh, ice-going conditions, the customer was delighted by the PPG SIGMASHIELD 1200 coating's performance. The examination showed that there was no damage on the vertical sides of the hulls as a result of ice impact.

Technical Management of COC commented, "Our vessels face severe ice-going scenarios and need the most effective protection for their hulls. Once we carefully assessed PPG's SIGMASHIELD 1200 coating and its use in similar situations, we were convinced that it would give our vessels the best protection. Additionally, its single-layer application with standard equipment saved a great deal of time during the dry dock stage."



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