



Inhibiting Corrosion in Vessels Containing Saltwater or Brine

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The M-645 Float Coat developed by Cortec extends ballast tank life and minimizes cost repairs.

Marine environments are extremely aggressive and corrosion protection in these areas requires an especially careful approach. Application of VpCI® inhibitors in the hydrostatic testing process is of great importance since the test water can be aggressive to pipeline material. The same goes for seawater ballasting of ships. M-645 is a float coat used to inhibit corrosion in vessels containing saltwater or brine. It floats on the surface of the water, forming a self-healing protective film on adjacent metals.

M-645 Float Coat's features

The film displaces water containing chlorides from the surface of the vessel. As the water is raised or lowered, M-645 coats every square inch of the vessel's interior— including ring stiffeners, girders, piping,

and side shells—with a sufficient amount of product to protect against corrosion. M-645 is ideal for ballast tanks that are frequently emptied and refilled. Because M-645 floats on the surface of the water, the non-aqueous formula does not contaminate ballast water, allowing for normal discharge procedures. It is also an effective corrosion inhibitor for hydrotesting large aboveground storage tanks (ASTs). The product is non-hazardous, non-flammable and self-reapplying. It will provide corrosion protection for a broad range of saltwater/brine applications. M-645 extends ballast tank life, minimizing costs for dry docking repairs, and does not interfere with ballast water discharge. It is effective for multiple tank refills.

Typical applications include:

- Hydrostatic testing of pipelines, vessels, and ASTs

M-645 is a float coat used to inhibit corrosion in vessels containing saltwater or brine.



- Seawater ballasting of ships, buoys, and oil rigs. M-645 is available in 5-gallon (19 L) pails, 55-gallon (208 L) metal drums, liquid totes, and bulk.

A specific application

In one application of M-645, the subcontractor needed to perform hydrostatic testing on tanks fabricated for the customer. The project involved 11 vessels with capacities varying from 10,382 cubic meters (2.7 million gallons) to 45,156 cubic meters (11.9 million gallons). The subcontractor needed an economical and environmentally acceptable method of corrosion protection for interior carbon steel surfaces during the hydrostatic testing process. Due to the scarcity of potable water in the UAE, it was decided to use seawater. Cortec's system, consisting of M-645 Float Coating and S-7 Oxygen Scavenger, was selected for corrosion inhibition. M-645 Float Coating at a concentration of 6 m²/L (244 ft²/gallon) and S-7 Oxygen Scavenger at 100 ppm were added to a tank before filling them with the required volume of seawater. The length of the hydrostatic tests varied from 35 to 45 days, and the seawater was reused in several tanks. When testing the next tank in line, the full calculated amount of M-645 and a reduced amount of S-7 were added. After hydrostatic testing, the interior surfaces of the tanks were immediately cleaned with Cortec's VpCl[®]-418 L, a non-foaming cleaner, diluted 3-5% with potable water, to remove any residual chloride prior to application of an epoxy coating.

The advantages of M-645

Cortec[®] proposed this chemical system as an economical and environmentally responsible method of effective corrosion protection for interiors of carbon steel tanks subjected to hydrostatic testing using seawater. The customer did not need additional biocide, which would have been both costly and environmentally undesirable. The treated seawater, after hydrotesting, met all requirements for discharge back to the sea. In addition to providing a high level of corrosion protection, Cortec[®] technology also offered important environmental benefits for the application. ◀



M-645 is ideal for ballast tanks that are frequently emptied and refilled as well as hydrostatic testing applications. Typical applications of M-645 float coat include hydrostatic testing of pipelines, vessels, and ASTs, and seawater ballasting of ships, buoys, and oil rigs.