

IMPREGLON® 410M

COATING FOR ACID GAS & ANTI-GALLING SERVICE

Introduction

IMPREGLON® 410M is a thin-film fluoropolymer coating designed to improve the performance of ANSI valves and fittings by preventing corrosion and galling. IMPREGLON® 410M offers superior resistance to corrosion in sour and acid gas environments. The coating also provides relief from the galling problems that occur with threaded connections on stainless steel fittings.

IMPREGLON® 410M reduces or eliminates the need for:

- Stainless valves & fittings
- Chemical inhibitors
- Liners
- High-build coatings



Track Record

IMPREGLON® 410M has been field proven in numerous applications across Western Canada since its introduction in 1999. Please contact our sales department for specific examples.

Impreglon Coatings, incorporated in 1974, is North America's leading applicator of thin-build fluoropolymer coatings for the production segment of the petroleum industry.

Typical Applications

- ANSI Valves
- API Wellhead components
- Fittings

Recommended Services

- **Corrosion:** Sour Gas < 10% H₂S; Acid Gas – Hydrochloric, Carbonic, Sulfuric, Nitric
- **Anti-galling:** Threaded connections

Chemical Resistance

Immersion (50 days of immersion @ 203°F.)	Results
36% Hydrochloric Acid	Excellent
60% Nitric Acid	Excellent
98% Sulfuric Acid	Excellent
28% Ammonium Hydroxide	Excellent
Acetone	Excellent
Diethyl Amine	Excellent
Toluene	Excellent



Physical Properties

- **Thickness Range:** 1.25 - 2.5 mils = 0.00125" - 0.0025" = 31.75 - 63.5 micron
- **Maximum Operating Temperature:** 500°F Continuous
- **Salt Spray Test - ASTM B117:** 1000+ hours @ 5% concentration
- **Colour:** Dark Orange

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COATING FOR CORROSION

Lab Test Results

IMPREGLON® 410M was laboratory (autoclave) tested prior to being put into service in order to determine its potential effectiveness as a corrosion resistant coating.

Autoclaves (pressurized vessels) were used to try to re-create downhole conditions as closely as possible. Using representative pressures, temperatures and chemicals, these tests are designed to accelerate corrosion and thereby give indication as to the likelihood of a coating's ability to succeed under a given set of conditions. Autoclave testing was conducted by an independent lab, Charter Coating Services Ltd. of Calgary, Alberta.

Following exposure in the autoclave, the coating is submitted to EIS testing (conducted by the Alberta Research Council Corrosion and Electrochemistry Laboratory). EIS (Electrochemical Impedance Spectroscopy) is a sensitive test for evaluating a coating's permeability to corrosive agents on an accelerated basis. Higher values indicate increased resistance to permeation. Ratings of 6.0 or greater are considered good to excellent.

	Pressure Release Time	Coating Thickness Tested @	Blister Rating ASTM D714	EIS Permeability Rating ⁽²⁾ : Gas/HC/H ₂ O
Test Medium #1*	1.5 hour	1.2 mils	None	10.59/10.58/10.57
Test Medium #2*	1 hour	1.6 mils	None	10.10/10.14/10.27

***Note: Tests were conducted under the following conditions:**

Duration: 96 hours

Temperature: 250°F

Pressure: 5000 psi

Gas: 10% H₂S, 10% CO₂, 80% CH₄

Hydrocarbon: Kerosene/Toluene @ 1:1 by volume

Water: 1% NaCl in distilled water for test medium #1, 25% NaCl in distilled water for test medium #2

	Pressure Release Time	Coating Thickness Tested @	Blister Rating ASTM D714	EIS Permeability Rating ⁽²⁾ : Gas/H ₂ C/Molten Sulphur
Test Medium #1*	0.75 hour	1.6 mils	None	8.86/7.62/8.76

***Note: Test was conducted under the following conditions:**

Duration: 96 hours

Temperature: 284°F

Pressure: 3000 psi

Gas: 50% H₂S, 10% CO₂, 40% CH₄

Molten: Elemental Sulfur

Water: 1% NaCl in distilled water

NOTE: The information presented is based upon the research and understandings of IMPREGLON® COATINGS. For new, unproven applications, we recommend lab testing followed by a field trial in order to ensure your complete satisfaction. Impreglon Coatings is the registered owner of the IMPREGLON® trade name in Canada and the exclusive applicator of IMPREGLON® COATINGS.