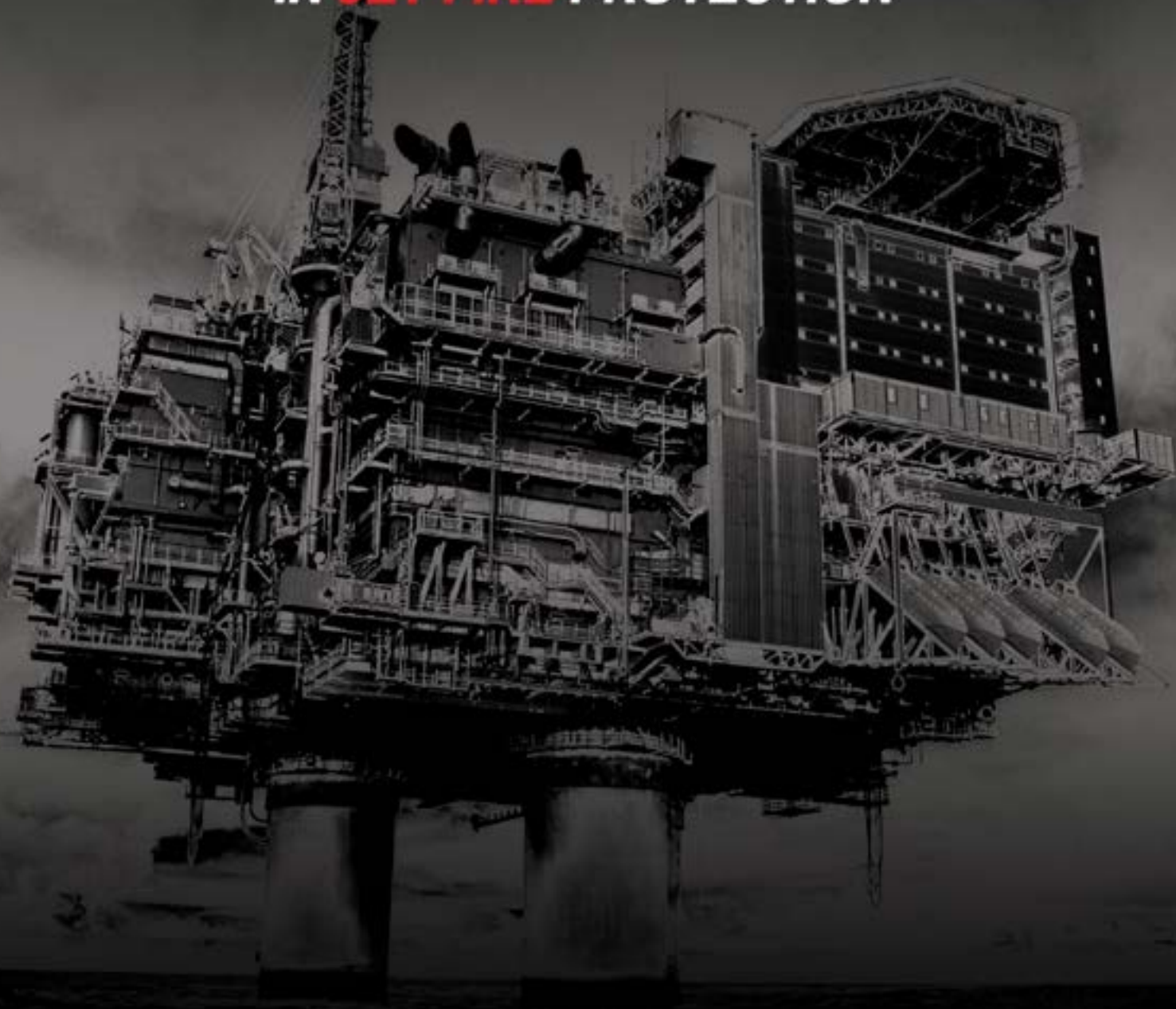


PYROCLAD[®] X1

THE-STATE-OF-THE-ART
IN **JET FIRE** PROTECTION



carboline[®]
Coatings - Linings - Fireproofing



FPSO



Offshore Platform



Hose Stream Test



Jet Fire Test



Intumescent Char

State-Of-The-Art Jet Fire Protection

Pyroclad X1 is the latest breakthrough in epoxy based intumescent fireproofing technology. Pyroclad X1 is a two component, solvent free coating designed to provide both jet fire and hydrocarbon pool fire protection for oil and gas installations.

Pyroclad X1 was developed to save lives and provide a superior level of fire protection for oil and gas assets around the world. This innovative new epoxy intumescent system withstands the harsh environmental conditions of coastal and offshore environments and successfully passed the Norsok M-501 environmental test program without a topcoat. Its unsurpassed weathering characteristics ensures the integrity and long term performance of the system. The superior physical characteristics of Pyroclad X1 promote high durability during construction and while in service. The outstanding toughness of Pyroclad X1 makes it suitable for both shop and field applications.

PYROCLAD® X1 FEATURES AND BENEFITS

Product Feature	Performance Benefit
Meets ISO 22899 jet fire and ISO 834/BS 476 hydrocarbon pool fire test standards	Ideal for use in oil and gas applications
Excellent jet fire & hydrocarbon ratings	Low installed thickness & labor savings
Successfully passed Norsok M-501 System 5A without a topcoat	Superior long-term weathering resistance
1:1 Mix Ratio	Straight forward user friendly application
Outstanding toughness and durability	Damage resistant during construction and throughout service life
Successfully passed rigorous explosion testing	Extreme explosion resistance
Low installed weight	Weight savings reduces overall construction, transportation & installation costs

Applications

- Offshore platforms
- FPSOs
- Refineries
- Petrochemical plants
- LNG terminals
- LPG storage facilities

Rigorously Tested For Performance

Pyroclad X1 has been extensively tested and certified in accordance with both ISO 22899 jet fire and ISO 834/BS-476 hydrocarbon pool fire test standards. It has jet fire and hydrocarbon pool fire type approvals from certifying organizations such as Lloyd's Register (LR), Det Norske Veritas (DNV), and American Bureau of Shipping (ABS). It has successfully passed the Norsok M-501 System 5A test program which ensures long term performance.

Certifications & Listings:

Tested in accordance to ISO 22899, and ISO 834/BS-476 for structural steel, and H-0, H-60, H-120 bulkheads and underdecks. All testing has been witnessed by the following certifying organizations:

- Lloyd's Register
- Det Norske Veritas
- American Bureau of Shipping

Environmental Testing:

Norsok M-501 System 5A
Successfully passed harsh offshore weathering exposure and durability testing.

- Excellent performance without a topcoat
- Negligible water absorption (0.2%)
- Outstanding corrosion protection

Performance Testing:

Blast Overpressure Testing
Successfully passed simulated explosion testing.

- 4 bar explosion resistance
- Able to resist 5" (127 mm) deflection over 6' (1.8 m) span
- No cracking or delamination

Hose Stream Endurance

Successfully passed NFPA 58, Annex H torch/hose stream impingement testing.

- Retains integrity during fire and hose stream impingement
- Maintained fire performance during exposure

Physical Properties	Test Procedure	Typical Results
Density <small>Density of the spray applied film will vary depending on application parameters.</small>	ASTM E605	1.03 - 1.10 g/cm ³
Solids By Volume		100%
Moisture Absorption	Norsok M-501	0.2% (un-topcoated)
Adhesion/Cohesion	ASTM D4541	1,840 psi (12.7 MPa)
Compressive Strength	ASTM D695	3,672 psi (25.3 MPa)
Flexural Strength	ASTM D790	3,925 psi (27.1 MPa)
Flame Spread	ASTM E84	20
Smoke Development	ASTM E84	60
Shore D Hardness		70
Film Build		240 mils (6 mm)
Mix Ratio		1:1 (by volume)
Recoat Time @ 77° F (25° C)		1 hour
Topcoat Time @ 77° F (25° C)		6 hours



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PROVEN PROTECTION UNDER FIRE™