

# Hempaline Defend 630

Solvent free phenolic epoxy

## Product description

Hempaline Defend 630 is a 100% solids high performance phenolic epoxy lining with excellent chemical resistance to a wide range of chemicals and solvents. This material is designed to be a single coat application. Hempaline Defend 630 is available in Cure 72 and in fast return to service (Cure 24) grades which both offer the same high performance.

## Typical applications

- ✓ Sweet and sour crude oil storage tanks
- ✓ Storage of refined petrochemicals
- ✓ Aromatic feedstocks
- ✓ Naphtha
- ✓ Part of a glass reinforced lining scheme (GRP)

## Typical scheme

(Refer to product data sheets and application instructions for details).

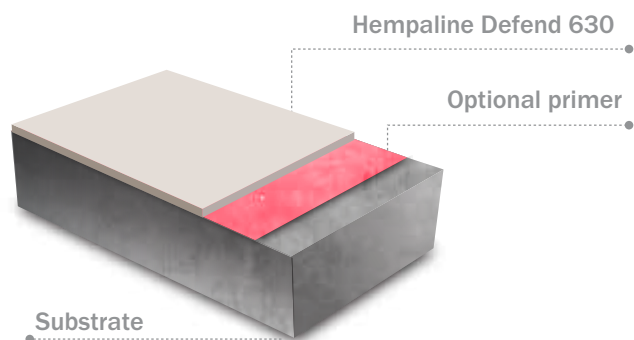
Abrasive grit blast clean to achieve a near white metal finish.

Coat	Description	Material	Thickness
1	Optional primer	As per specification	25-40 µm (1-1.6 mils)
2	Base coat	Hempaline Defend 630	500 µm (20 mils)



## Typical properties

Theoretical spreading rate:	2 m <sup>2</sup> per litre at 500 µm 80 ft <sup>2</sup> per gallon at 20 mils
Immersion temperature:	Up to 93°C (200°F)
Dry temperature:	107°C (225°F) continuous
Typical film thickness range:	400-750 µm (16-30 mils)
Fully cured:	24 hours at 20°C (Cure 24 Part B) 72 hours at 20°C (Cure 72 Part B)
Shelf life:	18 months at <20°C (68°F)



## Test results - Hempaline Defend 630 (Cure 24)

Physical value	Test method	Result	Test details
Adhesion to steel	ISO 4624	>22 MPa (3190 psi)	Excellent adhesion
Taber abrasion	ASTM D4060	84.6 mg	CS17 wheels 1 kg load
Impact	ISO 6272 or ASTM D2794	50 in-lb	
Flexibility	TM-0304	Flexural strain: 2.39%	
Tensile strength	ASTM D-2370	Strain at break: 1.44% Modulus: 2030 Nmm <sup>-2</sup>	
Thermal stress	NACE TM-0304	No cracks observed at 2 times thickness	Cycling from +60°C to -30°C within a 2 hour period. Duration: 252 cycles
Temperature resistance	ASTM D5499 (2013)	Moderate discolouration adhesion (ISO 4628) >6 MPa (870 psi) cohesive	
Gradient test	Marintek	No visual degradation of the film	
Autoclave	TM-0185	Slight colour change – adhesion in both phases >9 MPa (1305 psi)	170°C steam (100% in the vapour phase) for 96 hours. Cool to ambient temperature and slowly depressurised to ambient temperature over 15 minutes
Autoclave	TM-0185	Slight colour change – adhesion in both phases >11 MPa (1595 psi)	210°C steam (100% in the vapour phase) for 96 hours. Cool to ambient temperature and slowly depressurised to ambient temperature over 15 minutes
Atlas cell	TM-0174	No degradation	80°C IMO crude oil 6 months
Atlas cell	TM-0174	No degradation	50°C IMO crude oil / 5% NaCl (1:1) 6 months
Cathodic protection	ASTM G8	Zero disbondment	1500mV, artificial sea water 30 days at 23°C
Condensation	ISO 6270-1 or ASTM D4585	No visible degradation in accordance with ISO 4628. Adhesion >12 MPa (1740 psi)	35°C, 100% relative humidity
Weight gain in Xylene	Immersed films 52 days at 40°C	0.09%	
Weight gain in Ethanol	Immersed films 52 days at 40°C	5.6%	
Weight gain in water	Immersed films 52 days at 40°C	1.48%	

## Test results - Hempaline Defend 630 (Cure 72)

Physical value	Test method	Result	Test details
Adhesion to steel	ISO 4624	>22 MPa (3190 psi)	Excellent adhesion
Taber abrasion	ASTM D4060	76 mg	CS17 wheels 1 kg load
Impact	ISO 6272 or ASTM D2794	43 in-lb	
Flexibility	TM-0304	Flexural strain: 1.42%	
Tensile strength	ASTM D-2370	Strain at break: 1.55% Modulus: 2008 Nmm <sup>-2</sup>	
Thermal stress	NACE TM-0304	No cracks observed at 2 times thickness	Cycling from +60 °C to -30 °C within a 2 hour period. Duration: 252 cycles
Temperature resistance	ASTM D5499 (2013)	Moderate discolouration adhesion (ISO 4628) >6 MPa (870 psi) cohesive	
Gradient test	Marintek	No visual degradation of the film	
Autoclave	TM-0185	Slight colour change – adhesion in both phases >9 MPa (1305 psi)	170 °C steam (100% in the vapour phase) for 96 hours. Cool to ambient temperature and slowly depressurised to ambient temperature over 15 minutes
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Weight gain in water	Immersed films 52 days at 40 °C	1.48%	

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