M-CHEM 100 – CHEMICAL RESISTANT EPOXY COATING

M-CHEM 100 – Chemical Resistant Epoxy Coating

This is a Surface Tolerant, Chemical Resistant Epoxy Coating designed for the long-term protection of steel and concrete structures.

The coating when cured has excellent resistance to wide variety of commonly used chemicals.

M-CHEM 100 – Chemical Resistant Epoxy Coating can be applied to manually prepared steel and is tolerant to damp and condensation. The material can be used for applications operating at temperatures from ranging –20°C to 60°C.

This two-component product is highly resistant to marine and industrial environments, buried conditions, ground water, effluents, salt water and a wide range of oils and chemicals.

Typical Uses

- As an Internal Pipe Lining
- lining for Fuel Storage Tanks
- Chemical Resistant Lining for Storage Tanks
- As a Chemical Resistant Floor Coating
- To Protect Bunds & Containment Area's from Chemical Attack

Please contact us to discuss your project before purchasing this material to confirm suitability.

Application Guide

Surface Preparation - Metal - Grit Blast

- All oil and grease must be removed from the surface using an appropriate cleaner such as MEK or similar type solvent.
- All surfaces must be abrasive blasted to ***ISO 8501/4 Standard SA2.5 (SSPC SP10/ NACE 2)*** minimum blast profile of 75 microns using an angular.
- Once blast cleaned the surface must be degreased and cleaned using MEK or similar type solvent.
- All surfaces must be coated before gingering or oxidation.

Surface Preparation - Metal - Hydro-Blast

- All surfaces must be hydro-blasted using clean water at 12,000 psi (850bar) to NACE 5 (SSPC SP13 WJ3-WJ1).
- All surfaces must be coated before gingering or oxidation occurs

Surface Preparation - Metal - Manual

- All oil and grease must be removed from the surface using an appropriate cleaner such as MEK.
- All surfaces must be mechanically abraded using handheld grinders to ISO 8501/4 ST3 (SSPC SP3 ST3).
- Once abraded, the surface must be degreased and cleaned using MEK or similar type material.
- All surfaces must be repaired before gingering or oxidation occurs.

Surface Preparation - Soluble Salts

PLEASE NOTE: Soluble salt contaminated surfaces the substrate must be pressure washed with clean water and checked for salt contamination this process may need to be repeated several times.,

Surface Preparation - Existing Concrete

- If the concrete surface is contaminated, pressure wash using clean water.
- Once the concrete is dry lightly abrasive blast or scarify taking care not to expose the aggregate.
- Clean all dust and debris from the surface and take several moisture readings and prime with M-PRIME 100 – Low Viscosity Epoxy Concrete Primer or M-PRIME 104 – Damp Tolerant Concrete Primer dependent on the moisture readings obtained.
- Apply M-PRIME 100 or M-PRIME 104 at a target wet film of 150 microns, allow to cure before overcoating.
- For very porous surfaces a second coat of primer may be required.

New Concrete

- Allow new concrete to cure for a minimum of 21 days, lightly abrasive blast or scarify to remove any surface laitance.
- Clean all dust and debris from the surface and take several moisture readings and prime with M-PRIME 100 – Low Viscosity Epoxy Concrete Primer or M-PRIME 104 – Damp Tolerant Concrete Primer dependent on the moisture readings obtained.
- Apply M-PRIME 100 or M-PRIME 104 at a target wet film of 150 microns, allow to cure before overcoating.
- For very porous surfaces a second coat of primer may be required.

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APPLICATION GUIDE

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Environmental Checks

Prior to mixing, please ensure the following:

- The base component is at a temperature between 15-25°C.
- Do not apply the material when the ambient or substrate temperature is below 5°C.

Mixing

- Transfer the contents of the Activator unit into the Base container.
- Using a low-speed electric paddle mixer, mix the 2 components until a uniform material free of any streaks is achieved.
- Once mixing is complete use the mixed paste as soon possible after mixing.
- Use all mixed material within 20-25 minutes at 20°C.
- For applications that require additional pot life we suggest M-CHEM 101 – Chemical Resistant Epoxy Coating – Extended Cure.

Product Application
Brush & Roller

- Pour the mixed material into a paint kettle or paint tray (this will maximise the usable life).
- Stripe coat all edges, joints & corners.
- Once the stripe coat has cured and is capable of being overcoated, apply a basecoat at a minimum wet film thickness 250 microns.
- Once the basecoat has cured sufficiently, approximately 4 hours at 20°C, apply a topcoat at a minimum wet film thickness of 250 microns.

Technical Information

Appearance	Base	Highly structured thixotropic liquid
	Activator	Amber liquid
	Mixed	Thixotropic liquid
Mixing Ratio	By Weight	4:1
	By Volume	2.4:1
Density	Base	1.78
	Activator	1.05
	Mixed	1.56
Solids Content		100%

Sag Resistance	Nil at	400 microns
Usable Life	10°C 20°C 30°C	60 minutes 30 minutes 15 minutes
Coverage	Basecoat applied at a minimum target film thickness of 250 microns: Topcoat applied at a minimum target film thickness of 250 microns: Finished, minimum target film thickness of 500 microns:	4 sqm /ltr 4 sqm/ltr 2 sqm/ltr
Cure Times at 20°C	Minimum overcoating time Maximum overcoating time Water/ sea water immersion Chemical immersion	4 hours 36hours 3 days 5 days
Storage Life	Unopened and stored in dry conditions (15-30°C)	5 years
Abrasion Resistance	Taber CS17 Wheels/1 Kg load	138mg loss/1000 cycles 0.22cc loss/1000 cycles
Adhesion	Tensile Shear to ASTM D1002 on abrasive blasted mild steel with 75 micron profile	194kg/cm² 2750psi
Impact Resistance	Tested to ASTM G14	2.0 Joules
Cathodic Disbondment	Tested to ISO 21809-3:2016 28 days, 1.5v, 3% NaCl	23˚C 2.3mm 65˚C 5.1mm 95˚C 7.7mm
Compressive Strength	Tested to ASTM D 695	694kg/ cm² 9200psi
Corrosion Resistance	Tested to ASTM B117	5000 hours

Flexibility	(British Gas FW0028 Draft method) 3% Strain at 20°C – PASS 2% Strain at 5°C – PASS 1% Strain at 0°C	Pass Pass Pass
Flexural Strength	Tested to ASTM D790	522kg/cm² 7400ps
Hardness	Shore D to ASTM D2240	80
Heat Resistance	Suitable for use in immersed conditions at temperatures up to: Suitable for use in dry conditions at temperatures up to dependant on load:	60°C 200°C

Chemical Resistance Guide

Chemical Test Data

Chemicals & Concentrations	Test Temperature	Chemicals & Concentrations	Test Temperature
Ammonia	20˚C	Naphtha	40˚C
Brine	40˚C	Nitrus Acid up to 10%	20˚C
Crude Oil	40˚C	Phosphoric Acid up to	40˚C
De-ionised Water	30˚C	30%	40˚C
Diesel	40˚C	Sodium Hydroxide up to	40˚C
Ethanol	20˚C	50%	
Hydrochloric Acid up to	40˚C	Sulphuric acid up to 20%	
20%			

Please contact us to discuss your project before purchasing this material to confirm suitability.

For increased chemical resistance please consider M-CHEM 300 – Acid Resistant Epoxy Novolac Coating

Legal Notice

The data contained within this Technical Data Sheet is furnished for information only and is believed to be reliable at the time of issue. We cannot assume responsibility for results obtained by others over whose methods we have no control.

It is the responsibility of the customer to determine the products suitability for use.

Maxkote accepts no liability arising out of the use of this information or the product described herein.