MAXKOTE

APPLICATION GUIDE

APG-REV2- 2022

M-CHEM 401 – ACID RESISTANT HIGH TEMPERATURE COATING - EXTENDED CURE

M-CHEM 401 – Acid Resistant High Temperature Coating – Extended Cure

Is an Extend Cure Version of **M-CHEM 400** the material is a solvent free coating utilising the latest novolac polymer technology. The material provides excellent chemical protection for applications subject to high service temperatures.

The product is designed for the long-term protection of steel and concrete surfaces subject to constant chemical immersion at elevated temperatures.

Once cured the material is capable of withstanding service temperatures up to 90°C continuous immersion, dependent on chemical contact.

M-CHEM 401 is proven to protect against 98% Sulphuric Acid at 75°C, 36% Hydrochloric Acid at 50°C and 40% Phosphoric Acid at 60°C.

Typical Uses

- Tank lining & process vessels
- Lining for Chemical drains and channels
- Lining for Internal Pipe Surfaces
- Protection for Chemical Sumps
- Lining for Pressure Vessels

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

Application Guide

Surface Preparation - Steel

- 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.

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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 prime with M-PRIME 100 – Low Viscosity Epoxy Concrete Primer or M-PRIME 104 – Damp Tolerant Concrete Primer
- Apply either primer at target WFT of 150 microns, leave to cure for 3 hours (20°C) before overcoating.

New Concrete

- Allow new concrete to cure for a minimum of 21 days and treat to remove any surface laitance.
- Check the moisture content of the concrete prior to coating (8% moisture content or below).
- Lightly scarify the surface taking care not to expose the aggregate.
- Clean all dust and debris from the surface and prime with M-PRIME 100 low viscosity epoxy primer.
- Apply either primer at 150 microns WFT, leave to cure for 3 hours 20°C before overcoating.

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 10°C or less than 3°C above dew point.

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.

Use all mixed material within 20-25 minutes at 20°C.

Product Application

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Brush or Roller Applications

- Pour the mixed material into a paint kettle or paint tray (this will maximise the usable life)
- Using a 50mm wide synthetic brush, stripe coat all edges, joints, corners, and equipment with the mixed material. The stripe coat must be approximately 100mm wide, at 500 microns wet film thickness.
- Once the stripe coat has cured sufficiently and is capable of being overcoated, apply the 1st coat of mixed product to all surfaces at 500 microns wet film thickness.
- Once the 1st coat of material has cured sufficiently, approximately 8 hours at 20°C, apply a 2nd coat of material to all surfaces at 500 microns wet film thickness.

Spray set up & Application

- Spray application should be carried out by heated plural feed spray rig.
- The temperature of the base component should be kept around 35°C.
- Spray pressure of 3600psi and a tip size of 19-23 thou should be used.
- Using a 50mm wide synthetic brush, stripe coat all edges, joints, corners, and equipment with the mixed material. The stripe coat must be approximately 100mm wide, at 400 microns wet film thickness.
- Once the stripe coat has cured sufficiently and is capable of being overcoated, apply M-CHEM 401 to all surfaces at 1000 microns wet film thickness.

Enhanced Properties

To enhance the properties of this material, post curing will be required.

- Allow the product to cure for at least 4 hours at 20°C.
- Raise the coating and substrate temperature progressively to 60 – 80°C for up to 8 hours.

Post curing will result in improved mechanical, thermal and chemical resistance properties.

Technical Information

Appearance	Base	Grey/ red paste
	Activator	Amber fluid
	Mixed	Grey/ red Liquid
Mixing Ratio	By Weight	4.35:1
	By Volume	3.25:1
Density	Base	1.41
	Activator	1.05
	Mixed	1.33

Solids Content		100%
Sag Resistance	Nil at	500 microns
Usable Life	10°C 20°C 30°C	90 minutes 45 minutes 22 minutes
Theoretical Coverage	The material should be applied in 2 coats at 500 microns wet film thickness	2 sqm /ltr
Cure Times	Minimum overcoating time at 20°C Maximum overcoating time at 20°C Water/ sea water immersion at 20°C Chemical immersion at 20°C	8 hours 24hours 96 hours 7 days
Storage Life	Unopened and stored in dry conditions (15-30°C)	5 years
Adhesion	Tensile Shear to ASTM D1002 on abrasive blasted mild steel with 75-micron profile	201kg/cm² 2855psi
Compressive Strength	Tested to ASTM D 695	901kg/cm² (12800psi)
Corrosion Resistance	Tested to ASTM B117	5000 hours
Flexural Strength	Tested to ASTM D790	810kg/cm² (11500psi)
Hardness	Shore D to ASTM D2240	20°C 86 100°C 85 150°C 72
Heat Distortion	Tested to ASTM D648 at 264psi fibre stress	20°C Cure 60°C 100°C Cure 98°C

		150°C Cure 112°C
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:	90°C 200°C

Chemical Resistance Guide

Enhanced Chemical Resistance when post cured	Chemical Resistance tested at 20˚C	Chemical Resistance tested at 20˚C
Acetic Acid 10% at 50˚C	Chromic 10%	Butanol 100%
Ethanol 100% at 75˚C	Hydrobromic 40%	Ethylene glycol 100%
Sulphuric Acid 98% at 75˚C	Hydrochloric 36%	Hexanol 100%
Sulphuric Acid 25 -75% at 90˚C	Nitric 10%	Propylene glycol 100%
Hydrochloric Acid 10-36% at 50˚C	Nitrous 10%	Aniline 100%
Phosphoric Acid 20-40% at 60˚C	Phosphoric 75%	Diethanolamine 100%
Nitric Acid 5% at 50˚C	Sulphuric 98%	Hydrazine 100%
Sodium Hydroxide 40% at 90˚C	Acetic 10%	Methylamine 40%
Sodium Chloride 20% at 90˚C	Carbonic 30%	Cyclohexane 100%
	Citric 30%	Hexane 100%
	Folic 20%	Octane 100%
	Formic 10%	Benzene 100%
	Lactic 10%	Naphtha 100%
	Ammonium hydroxide 30%	Toluene 100%
	Potassium hydroxide 20%	Xylene 100%
	Sodium hydroxide 40%	
	Sodium Bisulphate 40%	

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Legal Notice

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

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