MAXKOTE

APPLICATION GUIDE

APG-REV2- 2022

M-CHEM 300 – ACID RESISTANT EPOXY NOVOLAC COATING

M-CHEM 300 - Acid Resistant Epoxy Novolac Coating

Is a high-build, solvent free Epoxy Novolac Coating, providing excellent resistance to a wide range of concentrated acids and industrial chemicals.

The material is suitable for a variety of applications including as a lining for bunding and secondary containment or as an internal lining for process equipment such as pressure vessels operating below 60°C.

M-CHEM 300 – Acid Resistant Epoxy Novolac Coating is proven to protect against Sulfuric Acid 98%, Hydrochloric Acid 36%, Phosphoric Acid 75%, and Hydrobromic Acid 40%.

Typical Uses

- Acid Resistant lining for Process Columns
- As a Chemical Storage Tank Lining
- To protect Bunds & Containments from chemical attack

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.

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 dependant on 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 dependant on 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.

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

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 target wet film thickness of 400-500 microns.
- Once the basecoat has cured sufficiently, (approximately 4 hours at 20°C) apply a topcoat at a target wet film thickness of 400-500 microns.

Airless Spray

Spray application should be carried out by airless spray using a 45:1 ratio pump with an attached hot water pump to heat the spray lines.

- The temperature around the spray lines should be kept around 25-35°C.
- Spray pressure of 3600psi and a tip size of 19-23 thou should be used.
- Use as short a line as possible to maintain product temperature (maximum 8 meters).
- Circulate the product for a short time to achieve temperature equilibrium.
- Stripe coat all edges, joints & corners.
- Once the stripe coat has cured and is capable of being overcoated, apply a basecoat at a target wet film thickness of 400-500 microns.
- Once the basecoat has cured sufficiently, (approximately 4 hours at 20°C) apply a topcoat at a target wet film thickness of 400-500 microns.

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 – 100°C for up to 8 hours.

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

Appearance	Base Activator Mixed	Highly structured thixotropic liquid Amber liquid Thixotropic liquid
Mixing Ratio	By Weight By Volume	4:1 3:1
Density	Base Activator Mixed	1.41 1.02 1.32
Solids Content		100%
Sag Resistance	Nil at	500 microns
Usable Life	10°C 20°C 30°C	50 minutes 25 minutes 12 minutes
Theoretical Coverage	Basecoat – minimum wet film thickness of 400 microns Topcoat – minimum 400 film thickness of 400 microns	2.5 sqm /ltr 2.5 sqm/ltr

Cure Times at 20°C	Minimum overcoating time Maximum overcoating time Water/ sea water immersion Chemical immersion	4 Hours 12 hours 4 days 7 days
Storage Life	Unopened and stored in dry conditions (15-30°C)	5 years
Abrasion Resistance	Test to Taber CS17 Wheels/1 Kg load	138mg loss/1000 cycles 0.18cc loss/1000 cycles
Adhesion	Tensile Shear to ASTM D1002 on abrasive blasted mild steel with 75 micron profile	208 kg/ cm² (2950 psi)
Compressive Strength	Tested to ASTM D 695	984kg/cm² 13,950psi
Corrosion Resistance	Tested to ASTM B117	5000 hours
Flexural Strength	Tested to ASTM D790	871kg/cm² 12,300ps
Hardness	Shore D to ASTM D2240	85
Heat Distortion	Tested to ASTM D648 at 264psi fibre stress	20°C Cure 52°C 100°C Cure 75°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:	60°C 200°C

Chemical Resistance Guide

Acetic Acid 10% at 30˚C
Ammonia Hydroxide 30% at 45˚C
Benzene 100% at 35˚C
De-ionised Water at 40˚C
Ethanol 100% at 45˚C
Hydrobromic Acid 40% at 30˚C
Phosphoric Acid 75% at 45˚C
Steam out at 180˚C
Sulphuric Acid 98% at 40˚C

Butanol 100% at 40˚C	Hydrochloric Acid 36% at 35˚C	Toluene 100% at 40˚C
Chromic Acid 10% at 40˚C	Nitric Acid 10% at 30˚C	Xylene 100% at 40˚C

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