Carbomastic 615

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Phenalkamine epoxy
Description	High performance epoxy that has excellent resistance to fresh and salt water exposures. This coating exhibits outstanding moisture and surface tolerance during application, low temperature cure capability, and very fast cure response for quick return to service. It contains an inert flake reinforcement (micaceous iron oxide) to enhance film strength and performance. This product is ideal for industrial or heavy duty marine environments for the protection of steel against salt laden environments.
Features	• High solids, low VOC • Low temperature cure • Excellent wetting properties • Excellent surface tolerance • Excellent moisture tolerance (application) • Fast cure response • Suitable for immersion service in fresh or salt water after 60 minute cure @24°C • **Approval - Food Processing:** NZ AsureQuality assessed & passed for food/beverage including farm & factory non-incidental contact. Ref: H3110
Colour	MIOX and Aluminium Grey
Gloss	Semi-gloss
Primer	Self-priming
Dry Film Thickness	127 - 254 microns (5 - 10 mils) per coat
Solids Content	By Volume 80% +/- 2%
Theoretical Coverage Rate	31.5 m² at 25 microns (1283 ft² at 1.0 mils) 6.3 m² at 125 microns (257 ft² at 5.0 mils) 3.1 m² at 250 microns (128 ft² at 10.0 mils) Allow for loss in mixing and application.
VOC Values	**As Supplied** : 172 g/l These are nominal values and may vary with colour.
Dry Temp. Resistance	Continuous: 93°C (199°F) Non-Continuous: 120°C (248°F)
Limitations	Epoxies lose gloss, discolour, and eventually chalk in sunlight exposure
Topcoats	Acrylics, Alkyds, Epoxies, Polyurethanes
Wet Temp. Resistance	Immersion temperature resistance depends upon the exposure. Contact Carboline for specific information.

SUBSTRATES & SURFACE PREPARATION

General	Remove any oil or grease from surface to be coated with clean rags soaked in Carboline Thinner #2, or toluene.

SUBSTRATES & SURFACE PREPARATION

Steel	Immersion: AS 1627.4 Class 2½, 50-75 micron surface profile. May also be applied over Ultra High Pressure Water Jet Cleaned surfaces (NACE/SSPC-SP WJ-1 (Clean to bare substrate) and to wet abrasive blast cleaned surfaces (NACE WAB-2/SSPC-SP 10). In both instances the level of rust bloom must be no greater than M-Medium. Non-Immersion: AS 1627.4 Class 2 with a 50-75 micron surface profile for maximum protection. Suitable for application over surfaces treated with Rustbond penetrating sealer. Power or hand tool cleaning are also acceptable methods.
Concrete	Do not apply coating unless concrete has cured at least 28 days at 21°C and 50% RH or equivalent. Normally clean and dry. Remove all loose, unsound concrete. This product can tolerate damp concrete (green appearance but not visibly wet). Not recommended for applications when hydrostatic pressure may occur. Consult Carboline Technical Service for more specific recommendations

PERFORMANCE DATA (TYPICAL VALUES)

Test Method	System	Results
AC Impedance** (ISO 16733)	Polarization Resistance Capacitance	$1.91x10^{10}$ ohm cm^2 275 pF/cm^2
ASTM D1640 Dry Time	Cure Temperature 2°C 24°C	Touch / Handle 8 hours / 16 hours 2½ hours / 6 hours
ASTM D2794 Impact Restistance	1 ct, MS SP2 - direct impact	Pass: 35 inch-pound
ASTM D4541 Pneumatic Adhesion	1 ct on damp steel @ 24°C	1258 psi
ASTM D4541 Pneumatic Adhesion	1 ct on damp steel @ 4³C	1340 psi
ASTM D4541 Pneumatic Adhesion	1 ct on MS Class 2½ @ 24°C	2359 psi
ASTM D522; B Flexibility Mandrel	1 ct, 2 weeks cure	NE @ 11mm radius
Cathodic Disbondment (mod ASTM G95)	1 ct on smooth Q Panel 7 days, 24°C @ -1.5 volts	2mm zero bond & 2mm total disbondment radii

**AC Impedance or Electrical Impedance Spectroscopy is a method to evaluate barrier properties and water uptake. The higher the Polarization Resistance, the better the barrier properties. Immersion grade coatings typically have Polarization Resistance of 1 x 10^9 ohm x cm^2 or higher. Capacitance is an indicator of water absorption of coatings; the smaller the capacitance the lower the water penetration and absorption.
*SP2 preparation (SSPC SP2 = Hand tool clean AS/NZS 1627.7)

MIXING & THINNING

Mixing	Mix each component separately, then combine and mix in a 4:1 by volume ratio (Part A : Part B)
Thinning	Thin up to 12% by volume with Carboline Thinner #2.
Ratio	4:1 by volume (Part A to Part B)
Pot Life	1½ hours at 24°C and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Spray Application (General)	Hold gun 300-400 mm from the surface and at a right angle to the surface.

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Conventional Spray	Pressure pot equipped with dual regulators, 9.5 mm (3/8”) I.D. minimum material hose, 1.8 mm (.070”) I.D. fluid tip and appropriate air cap.
Airless Spray	Pump Ratio: 30:1 (min) Volume Output: 9.5 l/min min. Material Hose: 9.5mm min.(3/8”) I.D. min.) Tip Size: 0.43-0.53mm (0.017-0.021”) Output Pressure: 140-175kg/cm² (2000-2500 psi) Use a 12.5 mm (1/2") minimum I.D. material hose *PTFE packings are recommended and available from pump manufacturer.
Brush & Roller (General)	Not recommended for tank lining applications except when striping welds. For non-immersion applications over damp surfaces, brush and roller is the preferred method. Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or re-rolling. For best results, tie-in within 10 minutes at 24°C. Thin up to 12% by volume with Thinner #2. Use a short-nap synthetic roller cover with phenolic core

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	7°C (45°F)	-7°C (19°F)	-7°C (19°F)	0%
Maximum	32°C (90°F)	49°C (120°F)	38°C (100°F)	95%

Industry standards are for substrate temperatures to be above the dew point. **For immersion conditions it is recommended to follow this procedure**. For non-immersion conditions Carbomastic 615 can tolerate damp substrates. See Brush or Roller above. Special thinning and application techniques may be required above or below normal conditions. Do not apply to substrates with ice or ice crystal formation. Dehumidify or raise the temperature to eliminate ice on the substrate.

CURING SCHEDULE

Surface Temp.	Dry to Topcoat Minimum	Maximum Recoat Time	Minimum cure for immersion service
-7°C (20°F)	72 Hours	45 Days	7 Days
2°C (35°F)	2 Days	30 Days	5 Days
16°C (60°F)	8 Hours	15 Days	3 Hours
24°C (75°F)	2 Hours	7 Days	1 Hours
32°C (90°F)	90 Minutes	3 Days	1 Hours

These times above are based on a 125-250 micron dry film thickness per coat. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discolouration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. If the maximum recoat times have been exceeded, the surface must be abraded by sweep blasting or sanding prior to the application of additional coats.

CLEANUP & SAFETY

Cleanup	Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

CLEANUP & SAFETY

Safety	Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions.
Ventilation	When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapour concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to ensure all personnel are below guidelines. If not sure or if not able to monitor levels, use suitable approved supplied air respirator.
Caution	This product contains flammable solvents. Keep away from sparks and open flames.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: 24 months @ 24°C Part B: 24 months @ 24°C Actual stated shelf life when kept at recommended storage conditions and in original unopened containers
Shipping Weight (Approximate)	1¼ litre kit: 2.4 kg 5 litre kit: 9.5 kg 10 litre kit: 19 kg
Storage Temperature & Humidity	4°C-38°C 0-95% Relative Humidity
Flash Point (Setaflash)	Part A: 43°C Part B: 32°C Mixed: 39°C
Storage	Store Indoors. KEEP DRY

WARRANTY

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