Metalox® - GC450

LIQUIMIX construction chemicals

100% Volume Solids Multipurpose Colour Epoxy

PRODUCT DESCRIPTION

A two component, high build 100% solids, surface-tolerant epoxy, designed for concrete and steel surfaces for atmospheric and immersion service. Metalox – GC450 has outstanding water and anti-corrosion resistance. It can be produced in a wide range of colours.

INTENDED USES

- Single or two coat anti-corrosive coating for steel structures
- Industrial Floors
- Bridges
- Piping
- Pulp and paper
- Suitable coating for galvanised iron

FEATURES

- Good adhesion onto many existing paint surfaces
- Excellent adhesion to concrete
- Tolerant to substrate moisture
- Fast cure at ambient temperature
- Resistant to splash and spill chemicals
- Full cure down to 5°C
- Outstanding water resistance
- 100% solids (non-tinted colours)
- Convenient 1:1 by volume mix ratio
- Direct to substrate coating
- Wide colour range available

PRODUCT DATA

Volume Solids Untinted	100% depending on colour
Volume Solids Tinted	97%
Theoretical Coverage	5 Square meters / Litre at 200 Microns DFT
Finish	Pigmented
Colour	Wide colour range employing LiquiChrome tinting system
Gloss	Semi-Gloss
Mixing Ratio	1:1 by volume
Pot life	45 Min @ 25°C
Typical Thickness	125 to 300 Microns DFT (125 to 300 Microns WFT)
Cleaner	LM1 Thinner
Flash Point Tinted	40 °C
Flash Point Untinted	89.9°C
VOC	0 Grams/Litre mixed
VOC Tinted Colours	55 grams maximum mixed
Specific Gravity	1.48 White mixed

CURE & RECOAT

Substrate Temp	**Tacked**	**Hard Dry**	**Full Cure Note 1**	**Minimum Recoat**	**Maximum Recoat Time Note 2**
5°C	24 Hrs	48 Hrs		24 Hrs	12 Days
10°C	12 Hrs	24 Hrs		12 Hrs	10 Days
15°C	6 Hrs	12 Hrs		6 Hrs	6 Days
25°C	3 Hrs	6 Hrs	7-14 Days	3 Hrs	3 Days
40°C	1.5 Hrs	2 Hrs		1.5 Hrs	1 Day
Note 1:	Pull-off adhesion testing is best conducted after 3 Days plus ambient cure				
Note 2:	Where the coating is exposed to direct sun and UV, the maximum recoat time will be considerably reduced. Contact Liquimix for advice				

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ENGINEERING DATA

Property	Test Method	Result
Dry Heat Resistance		100°C
Abrasion resistance	ASTM c501-84, H18 wheel @ 1,000rpm with 1,000g weight	98mg

POTLIFE

Mixed Product Temp	Pot Life (Note 1)
10°C	90 min
15°C	60 min
25°C	45 min
40°C	10 min

Note 1: Potlife is dependent on product temperature as well as mix size. When using larger mix sizes, the potlife will be shorter. Keep products cool.

LIMITATIONS

- Expect some colour change and surface chalking over time for exposed Metalox – GC450.
- May bubble or crater when applied directly to concrete that is outgassing from rising temperatures or high moisture content. To minimise this, apply a coat of Civilox – LV100 to seal the concrete first and work it well into the surface, making sure all pores and holes are filled. Reschedule application to when the concrete is cooling down such as at night.
- Product requires up to 14 days to develop full physical properties and adhesion. Pulloff or other adhesion testing might not produce accurate results during this period.

SURFACE PREP

Steel

1. Remove all rust, mill scale oil and any previously applied coatings back to bare clean steel using abrasive blast. Welds should have slag and spatter fully removed.
2. Abrasive blast to Sa2½ (ISO 8501-1:2007) or SSPC-SP10. A sharp, angular surface profile of 75-100 microns is recommended.
3. For permanent immersion, remove soluble salts on the steel surface to less than 5 microgram/cm^2

Concrete

The concrete surface preparation must be conducted under the SSPC-SP13/NACE No. 6 surface preparation standard for concrete. This standard covers the preparation of concrete surfaces before the application of protective coating or lining systems.

The concrete should be at least 28 days old. Ensure that the moisture content of the concrete is less than 7% before applying any coatings. A moisture test as outlined in ASTM D4263 can be used to confirm the moisture content

1. Remove all oil, grease and release agents in the concrete. Ensure that any laitance or other invisible contaminants have been removed. Be especially careful with concrete surfaces that have been in contact with formply or moulds that may contain release agents. These release agents commonly contain heavy hydrocarbon waxes or silicones that can adversely affect the adhesion. Contaminant may also be present below the surface as it may have penetrated the concrete. This can be the case in food processing facilities for example. Depending on the depth of the contaminant this may require solvent and /or hot water high pressure cleaning.

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Concrete surface prep continued:

Prepare the concrete surface to a clean, dry finish through ensuring that the water and air used in the decontamination of the concrete is clean.

2. Fill big holes with PU sealant or Civilox – LV100 mixed with Patchfill.
3. Render exposed aggregate back to the original profile with a mixture of Civilox – LV100 and Renderfill.
4. Remove high spots and protrusions, radius sharp edges and corners. Cove internal 90 degree angles with 45 degree, 20mm flat chamfer.
5. Prepare concrete to surface preparation of concrete should be done in accordance to SSPC-SP13/NACE 6. Smooth, shiny concrete must be roughened to a profile similar to 80 grit sandpaper and comply with CSP 4 or CSP 5 as specified. Preferred method of doing this is with Vapour Abrasive Blasting. However other methods such as dry abrasive blasting and grinding may also be employed. Acid etching is not an acceptable surface preparation method.
6. For more detailed information consult the application guidelines.

APPLICATION

Equipment

Airless 60:1 Pump (Preferred)	Tip Range 21-26 Thou (0.53-0.66 mm). Output fluid pressure at spray tip not less than 3000Psi (210 kg/cm²)
Roller and Brush	Suitable for small areas
Alternative application:	Plural component equipment from Graco that automatically meters and mixes Metalox – GC450 such as Graco XM or Graco XP
Temperature of material at gun:	Ambient (20 – 30°C)

Environment

Relative humidity:	<85%
Dew point:	>3°C above substrate temperature
Substrate Temperature:	>5°C

Mixing

Always stir Metalox – GC450 Part A (Coloured pigmented) and Metalox – GC450 Part B (Cream pigmented) in its original container well before use.
Mechanically mix (by volume) 1 Part of Metalox – GC450 Part A with 1 Part of Metalox – GC450 Part B hardener (1:1). Do not vary from this ratio. Metalox – GC450 is supplied in pre-measured containers, make up the entire mix. Do not attempt to part mix.
Avoid entrapping air during mixing.

Thinning

Thinning of Metalox – GC450 is not considered necessary or desirable.

Cleanup

LM1 Thinner may be used for general clean-up of equipment and hoses. To remove cured material from metal parts, soak in Swell. Keep all gun part A side components in soak containers on the left side of the work bench and all part B side components on the right side of the work bench. The use of plastic soak containers with clip on lids and removable baskets makes the job easier. Replace the SWELL regularly as soon as it starts turning cloudy and dirty.

Concrete

Apply one coat of Civilox – LV100 to seal the concrete. For best results apply Civilox – LV100 in the evening when the concrete is cooling down and not outgassing. The Metalox – GC450 can be applied as soon as the Civilox – LV100 has tacked or the following morning when the Civilox – LV100 is cured.

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Concrete application continued:
Depending on the quality and porosity of the concrete another coat of Civilox – LV100 may be required in order to minimise pin-holing in the subsequent application of Metalox – GC450. Avoid applying too much Civilox – LV100 to the point where it ponds. If this happens spread the excess out with a roller to other areas. It is important to maintain the profile of the concrete.
Then apply the Metalox – GC450 with a suitable paint roller or spray using Airless 60:1 single leg equipment or plural spray equipment such as Graco XM or XP.

COMPATIBILITY

Primers	Civilox – LV100
Topcoats	Metalox – GC450 Opalon S30 Finish

TYPICAL SYSTEM

Substrate	Environment	Substrate Prep	Coat	System	DFT
Concrete	External	Vapour Abrasive Blast	1st Coat 2nd Coat	Civilox – LV100 Metalox – GC450	100µm 200µm
Steel	Tank Internal Water Immersion	Abrasive Blast to SA2.5	1st Coat 2nd Coat	Metalox – GC450 Metalox – GC450	150µm 150µm
Steel	Structural Steel C4 Very High Durability	Abrasive Blast to SA2.5	1st Coat 2nd Coat	Metalox – GC450 Opalon S30 Finish	250µm 75µm

STORAGE & HANDLING

Store in dry, shaded conditions away from sources of heat and ignition and in properly sealed containers. Protect from heat and frost.
A shelf life of 18 months minimum is typical if stored under ambient conditions at 25 °C

PACK SIZE

20L Kits
10L of Metalox – GC450 Part A
10L of Metalox – GC450 Part B

8L Kits
4L of Metalox – GC450 Part A
4L of Metalox – GC450 Part B

HEALTH & SAFETY

Metalox – GC450 is for professional use only.
This product should not be used without consulting the safety data sheets first.
Observe all health and safety as well as environmental legislation.

NOTICE