



Protective & Marine Coatings

MACROPOXY™ M400 ZINC PHOSPHATE PRIMER

FORMERLY KNOWN AS EPIGRIP M400

Revised 07/2017 Issue 19

PRODUCT INFORMATION

PRODUCT DESCRIPTION

A 2-pack epoxy zinc phosphate primer.

RECOMMENDED USE

Anti-corrosive protection of carbon steel surfaces prepared by abrasive blast cleaning.

For use in internal/external exposed conditions, but excluding offshore, petrochemical and immersed applications.

RECOMMENDED APPLICATION METHODS

Airless Spray
Conventional Spray
Brush (small areas and touch up only)

Recommended Cleanser/Thinner: No 5

PRODUCT CHARACTERISTICS

Flash Point: Base : 25°C Additive : 31°C

% Solids by Volume: 57 ± 3% (ASTM-D2697-91)

Pot Life: 8 hrs @ 15° 6 hrs @ 23°C 3 hrs @ 35°C

Colour Availability: Light Grey and Red Oxide

VOC

372 gms/litre determined practically in accordance with UK Regulations PG6/23
399 gms/litre calculated from formulation to satisfy EC Solvent Emissions Directive
283 gms/kilo content by weight from formulation, to satisfy EC Solvent Emissions Directive

RECOMMENDED THICKNESS

Dry film thickness	Wet film thickness	Theoretical coverage
75 microns	132 microns	7.6 m ² /ltr*

* This figure makes no allowance for surface profile, uneven application, overspray or losses in containers and equipment. Film thickness will vary depending on actual use and specification.

PRACTICAL APPLICATION RATES - MICRONS PER COAT

	Airless Spray	Conventional Spray	Brush
Dry	75*	75	50
Wet	132	132	88

*Maximum sag tolerance with overlap typically 150µm dry by airless spray

AVERAGE DRYING TIMES

	At 15°C	At 23°C	At 35°
To touch:	3 hours	2 hours	1 hour
To recoat:	6 hours	4 hours	3 hours
To handle:	24 hours	16 hours	12 hours

These figures are given as a guide only. Factors such as air movement and humidity must also be considered.

RECOMMENDED TOPCOATS

Indefinitely overcoatable with epoxy systems provided the surfaces to be coated have been suitably cleaned. Where a high degree of gloss and colour retention is required overcoat with Acrolon C137V2, Acrolon C237, Acrolon 1850 or Acrolon 7300 within 7 days at a minimum dft of 50 microns or in the case of Acrolon C750V2 overcoat within 4 days. These overcoating times refer to achievement of optimum adhesion at 23°C and will vary with temperature. For overcoating with alkyd systems consult Sherwin-Williams for advice.

PACKAGE

A two component material supplied in separate containers to be mixed prior to use.

Pack Size: 20 litre units when mixed.

Mixing Ratio: 7 parts base to 1 part additive by volume

Weight: 1.41 kg/litre (may vary with shade).

Shelf Life: 2 years from date of manufacture or 'Use By' date where specified.



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SURFACE PREPARATION

Blast clean to Sa2½ BS EN ISO 8501-1:2007. Average surface profile in the range 50-75 microns.

Ensure surfaces to be coated are clean, dry and free from all surface contamination.

APPLICATION EQUIPMENT

Airless Spray

Airless Spray	:	
Nozzle Size	:	0.38-0.43mm (15-17 thou)
Fan Angle	:	65°
Operating Pressure	:	155kg/cm ² (2200 psi)

The airless spray details given above are intended as a guide only. Details such as fluid hose length and diameter, paint temperature and job shape and size all have an effect on the spray tip and operating pressure chosen. However, the operating pressure should be the lowest possible consistent with satisfactory atomisation. As conditions will vary from job to job, it is the applicators' responsibility to ensure that the equipment in use has been set up to give the best results. If in doubt Sherwin-Williams should be consulted.

Conventional Spray

Nozzle Size	:	1.27mm (50 thou)
Atomising Pressure	:	2.8kg/cm ² (40 psi)
Fluid Pressure	:	0.4kg/cm ² (6 psi)

The details of atomising pressure, fluid pressure and nozzle size are given as a guide. It may be found that slight variations of pressure will provide optimum atomisation in some circumstances according to the set up in use. Atomising air pressure depends on the air cap in use and the fluid pressure depends on the length of line and direction of feed i.e. horizontal or vertical.

Brush

The material is suitable for brush application to small areas and for touch up purposes. Application of more than one coat may be necessary to give equivalent dry film thickness to a single spray applied coat.

APPLICATION CONDITIONS AND OVERCOATING

Epoxy paints should preferably be applied at temperatures in excess of 10°C. In conditions of high relative humidity, i.e. 80-85% good ventilation conditions are essential. Substrate temperature shall be at least 3°C above the dew point and always above 0°C.

At application temperatures below 10°C, drying and curing times will be significantly extended, and spraying characteristics may be impaired. Application at ambient air temperatures below 5°C is not recommended.

In order to achieve optimum water and chemical resistance, temperature needs to be maintained above 10°C during curing.

If it is desired to overcoat outside the times stated on the data sheet, please seek advice of Sherwin-Williams

ADDITIONAL NOTES

Drying times, curing times and pot life should be considered as a guide only.

The curing reaction of epoxies commences immediately when the two components are mixed, and since the reaction is dependent on temperature, the curing time and pot life will be approximately halved by a 10°C increase in temperature and doubled by a 10°C decrease in temperature.

Epoxy Coatings - Colour Stability:

Variable colour stability is a feature of epoxy materials which tend to yellow and darken with age and particularly when used on internal areas. Therefore any areas touched up and repaired with the same colour at a later date may be obvious due to this colour change.

When epoxy materials are exposed to ultra-violet light a surface chalking effect will develop. This phenomenon results in loss of gloss and a fine powder coating at the surface which may give rise to colour variation depending on the aspect of the steelwork. This effect in no way detracts from the performance of the system.

Epoxy Coatings - Tropical Use

Epoxy paints at the time of mixing should not exceed a temperature of 35°C. At this temperature the pot life will be approximately halved. Use of these products outside of the pot life may result in inferior adhesion properties even if the materials appear fit for application. Thinning the mixed product will not alleviate this problem.

The maximum air and substrate temperature for application is 50°C providing conditions allow satisfactory application and film formation. If the air and substrate temperatures exceed 50°C and epoxy coatings are applied under these conditions, paint film defects such as dry spray, bubbling and pinholing etc. can occur within the coating.

Numerical values quoted for physical data may vary slightly from batch to batch.

HEALTH AND SAFETY

Consult Product Health and Safety Data Sheet for information on safe storage, handling and application of this product.

WARRANTY

Any person or company using the product without first making further enquiries as to the suitability of the product for the intended purpose does so at their own risk, and Sherwin-Williams can accept no liability for the performance of the product, or for any loss or damage arising out of such use.

The information detailed in this Data Sheet is liable to modification from time to time in the light of experience and of normal product development, and before using, customers are advised to check with Sherwin-Williams, quoting the reference number, to ensure that they possess the latest issue.