Protective & Marine Coatings
PRODUCT DATA SHEET

MACROPOXY® EG-1 PLUS

EPOXY PRIMER AND INTERMEDIATE COAT/MIO

Revised 03/2024 Issue 2

PRODUCT DESCRIPTION

A 2-pack high solids epoxy coating pigmented with micaceous iron oxide (MIO).
Low solvent content according to Protective Coatings Directive of German Paint Industry Association (VdL-RL 04).

- Low consumption per square meter
- Fast curing, with short overcoating time
- Direct to steel, hot-dip galvanized steel, stainless steel and aluminium
- Suitable as sealer for thermal-sprayed zinc coatings

RECOMMENDED USE

Can be used as an intermediate coat in combination with Zinc Clad® or Macropoxy® high performance primers and Acrolon® topcoats.
Also recommended as a primer for steel, hot-dip galvanized steel, stainless steel and aluminium.
Also recommended as a sealer coat for thermal-sprayed metallic zinc coatings to seal the pores.

PRODUCT TECHNICAL DATA

Volume Solids: 69 ± 2% (MIO), 70 ± 2% (MIO-free) (ISO 3233-3)

Weight Solids: 78 ± 2%

VOC: 285 g/l determined practically in accordance with Protective Coatings Directive of German Paint Industry Association (VdL-RL 04).
326 g/l calculated from formulation to satisfy EC Solvent Emissions Directive.
217 g/kg calculated from formulation to satisfy EC Solvent Emissions Directive (UK).

Colours: MIO colour shades:
Grey metallic approx. DB 702, material no. 687.12;
Grey metallic approx. DB 703, material no. 687.13;
Green metallic approx. DB 601, material no. 687.14;
Red metallic approx. DB301; light grey metallic approx. DB701
MIO-free colour shades:
RAL 9002 Grey white, material no. 650.97
Slight colour deviations are possible due to raw material characteristics.

Flash Point: Base: 23°C, Hardener: 48°C

Cleaner/Thinner: Cleaner 26 (for cleaning)
Thinner EG for thinning with max. 5% to adapt the viscosity.
Thinning will affect VOC compliance, sag tolerance and dry film thicknesses.
If used as a sealer, thin with 20% Thinner EG and use the thinned material immediately and under continuous stirring to avoid settling.

Pack Size: A two component material supplied in separate containers to be mixed prior to use:
30 kg (20 litre), 15 kg (10 litre) and 3 kg (2 litre) units when mixed.
Volume will vary with colours and density.

Mixing Ratio: 90 parts base to 10 parts hardener by weight.
5.7 parts base to 1 part hardener by volume.

Density: 1.5 kg/l (MIO)
1.4 kg/l (MIO-free)
(may vary with colours)

Shelf Life: 2 years from date of manufacture, stored in originally sealed containers in a cool and dry environment

Recommended Application Methods:
Airless Spray, Conventional Spray, Brush, Roller

Typical Thickness:

Recommended Spreading Rate Per Coat

MIO Shade	Typical		Maximum Sag
Dry	80 µm	160 µm	320 µm
Wet	116 µm	232 µm	460 µm
Theoretical Consumption*	0.174 kg/m² 0.116 l/m²	0.348 kg/m² 0.232 l/m²	
Theoretical Coverage*	5.75 m²/kg 8.63 m²/l	2.88 m²/kg 4.31 m²/l	

MIO-Free Shade	Typical		Maximum Sag
Dry	80 µm	160 µm	320 µm
Wet	114 µm	229 µm	460 µm
Theoretical Consumption*	0.160 kg/m² 0.114 l/m²	0.320 kg/m² 0.229 l/m²	
Theoretical Coverage*	6.25 m²/kg 8.75 m²/l	3.13 m²/kg 4.38 m²/l	

* 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.

Pot Life:

+ 10°C	+ 20°C	+ 30°C
12 hours	8 hours	5 hours

Pot life is dependent on temperature and volume.

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AVERAGE DRYING TIMES

For 80 µm Dry Film Thickness:

	+ 5°C	+ 10°C	+ 20°C	+ 40°C	+ 80°C
Dry to handle (Drying Stage 6*)	12 hours	8 hours	4 hours	75 min	20 min
To Recoat	12 hours	8 hours	4 hours	75 min	20 min

For 160 µm Dry Film Thickness:

	+ 5°C	+ 10°C	+ 20°C	+ 40°C
Dry to handle (Drying Stage 6*)	20 hours	12 hours	5.5 hours	2 hours
To Recoat	20 hours	12 hours	5.5 hours	2 hours

*ISO 9117

Maximum recoat time is 4 years. Prior to further applications all contamination must be removed. In the case of extended recoating times consult Sherwin Williams customer service.

Final cure: 1-2 weeks, depending on film thickness and temperature. These figures are given as a guide only. Factors such as air movement, film thickness and humidity must also be considered.

APPROVALS & ENDORSEMENTS

- Approved according to German standard 'TL KOR-Stahlbauten, Blatt 87'
- Approved according to German standard 'TL KOR-Stahlbauten, Blatt 50'
- Approved according to Austrian standard RVS 15.05.11 and RVS 08.09.02 System S18 and S19.
- Certificates for C4 high, C5 high and very high according to ISO 12944 are available

SURFACE PREPARATION

Ensure surfaces to be coated are clean, dry and free from all surface contamination such as oil, grease, dirt and corrosion products to achieve satisfactory adhesion. For contaminated and weathered surfaces e.g. primed areas we recommend to clean with Cleaner Wash.

Steel surfaces shall be blast-cleaned to Sa 2½ according to ISO 8501-1 (ISO 12944-4).

Hot-dip galvanized surfaces, stainless steel and aluminium shall be prepared by degreasing or, in case of permanent immersion or condensation, sweep blasting according to ISO 12944-4 with a non-ferrous blasting abrasive.

Thermal-sprayed metallic zinc coating shall be thoroughly cleaned of spray dust and loose spray particles. Sealing must be started immediately after the spraying process and before visible oxidation of the surface occurs and to avoid contamination by dirt or moisture.

MIXING

Stir component A very thoroughly using a mechanical paint mixer (start slowly, then increase up to approx. 300 rpm). Add component B carefully and mix both components very thoroughly (including sides and bottom of the container). Mix for at least 3 minutes until a homogeneous mixture is achieved. We recommend to fill the mixed material into a clean container and mix again shortly as described above to avoid incorrect mixing. During mixing and handling of the materials always wear protective goggles, suitable gloves and other protective clothing.

APPLICATION CONDITIONS

Substrate temperature shall be above + 5°C and at least 3°C above the dew point.

Material temperature shall be above + 5°C.

Relative air humidity shall be below 85%.

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for satisfactory application characteristics. Always purge spray equipment before use with listed cleaner. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Airless Spray

Unit: Efficient airless equipment

Tip Size: 0.38 – 0.53 mm (0.015 – 0.021 inch)

Fan Angle: 40° - 80°

Operating Pressure: min. 180 bar (2600 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 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 consult Sherwin-Williams customer service.

Conventional Spray

Atomising Pressure: 3 - 5 bar (43 - 73 psi)

Tip Size: 1.5 – 2.5 mm (0.06 – 0.10 inch)

Brush and Roller

The coating is suitable for brush and roller application. Application of more than one coat may be necessary to give equivalent dry film thickness to a single spray applied coat.

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RECOMMENDED SYSTEMS

Steel
1 x Macropoxy® EG-1 Plus
In case of exposure to permanent condensation use a Zinc Clad® primer.

Intermediate coat
Compatible with a wide range of Sherwin-Williams Macropoxy® and Zinc Clad® epoxy primers.

Suitable topcoats
Overcoatable with 1- or 2-pack epoxy and polyurethane coatings of Sherwin-Williams. Provided the surface to be coated is clean, dry and free from contamination.

Hot-dip galvanized steel, stainless steel and aluminium
1 x Macropoxy® EG-1 Plus
1 x Acrolon® topcoat

Thermal-sprayed metallic zinc coatings
1 x Macropoxy® EG-1 Plus as sealer
1 x Macropoxy® EG-1 Plus

For use as a sealer on thermal-sprayed metallic zinc coatings, thin with 20% Thinner EG. Apply the thinned material immediately and under constant stirring as a thin mist-coat to fill substrate porosity without applying a full coat at this stage.

After a waiting time of approx. 15 minutes, spray 'wet on wet' the remaining thickness of Macropoxy® EG-1 Plus.

ADDITIONAL NOTES

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

Epoxy Coatings - Tropical Use:
Epoxy coatings at the time of mixing should not exceed a temperature of 35˚C. 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. If the air and substrate temperatures exceed 40˚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.

Chemical resistance:
Resistant to weathering, water, seawater, smoke, de-icing salts, acid and alkali vapours, oils, grease and short-term exposure to fuels and solvents.

Temperature resistance:
Dry heat up to + 150°C, short term up to + 200°C.
Increased humid ambient temperature up to approx. + 50°C.
In case of higher temperatures consult Sherwin-Williams customer service.
Numerical values quoted for physical data may vary slightly from batch to batch.

HEALTH & SAFETY

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

WARRANTY

Whilst all statements made about our products (whether in this data sheet or otherwise) are correct and accurate to the best of our knowledge, we have no control over the quality or the condition of the substrate, the application conditions or the many other factors affecting your use and application of our product.

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