

EPOXY SAFETY COATING FOR CONCRETE PIT WALLS AND STEEL CASTING EQUIPMENT



Wise Chem® is a high performance, two-component amine epoxy coating that is multi-surface tolerant.

Wise Chem E-212-F coating is a one-coat application that cures quickly and adheres well to itself. It creates an effective safety barrier between a wet substrate and molten aluminium to reduce the risk of molten aluminium explosion. Wise Chem has been tested by The Aluminum Association.

The coating is effective at isolating concrete surfaces and inhibiting rust formation on exposed steel parts. Wise Chem coatings develop excellent adhesion to damp surfaces. This feature allows casting pits to be coated without waiting for the walls to fully dry, minimizing downtime.

APPLICATIONS

Intended for use on properly prepared substrates including immersion (non-potable water) service, direct chill casting pits for aluminium and magnesium mills, and structures exposed to marine and industrial environments.



Exposed and rusty metal on the casting deck represents an extreme risk for molten metal explosion. Proper application of Wise Chem reduces the risk of serious personal injury and plant damage.

WARNING: Never contact wet coating with molten metal.

BENEFITS

- Single coat application in most conditions
- Exceptional chemical resistance
- Suitable for short periods of immersion in concentrated acids and alkalis
- Unharmed by splash, spillage, or fumes of petroleum products, alkalis, acids, alcohols and other solvents
- Excellent adhesion to damp surfaces
- Suitable for salt and fresh water immersion
- High solids—high film build

PACKAGING

- 3.7 L (1 gal) kit consists of:
 - Part A base— 3 L (0.80 gal)
 - Part B converter— 0.7 L (0.20 gal)
- 18.9 L (5 gal) kit consists of:
 - Part A base— 15.2 L (4 gal)
 - Part B converter— 3.7 L (1 gal)

SHIPPING WEIGHT

- 1 gallon kit. 4.9 kg (11 lb) consists of:
 - Part A base— 3.6 kg (0.80 gal, 8 lb)
 - Part B converter— 1.3 kg (0.20 gal, 3 lb)
- 5 gallon kit. 25 kg (55 lb) consists of:
 - Part A base— 14.5 kg (4 gal, 32 lb)
 - Part B converter— 5.8 kg (1 gal, 13 lb)

STORAGE

Refer to the safety data sheets for Part A and Part B storage requirements.

SHELF LIFE

Two years minimum at 25°C (77°F). Subject to reinspection thereafter.

HEALTH AND SAFETY

Prior to use, refer to the product safety data sheet for proper handling and required personal protective equipment.

SUBSTRATE AND SURFACE PREPARATION

GENERAL

Surfaces must be structurally sound and should be clean, free of oil, grease, form-release agents, curing compounds, laitance and other foreign matter. If a prepared surface remains damp, Wise Chem E-212-F can still be applied with success and retain its excellent adhesion.

STEEL

New steel surfaces should be initially blasted to a SSPC-SP6 or SSI-Sa2 surface preparation. The blast profile should be 38–63 micron (1.50–2.48 mil) in depth, and be of a sharp, jagged nature versus a "peen" pattern (from shot blasting).

CONCRETE

Concrete must be cured for 28 days at 21°C (70°F). Abrasive-blast the concrete to clean the substrate and remove any laitance, pits, voids, efflorescence, oils, etc. Do not acid-etch the concrete. Voids in the concrete surface may require surfacing with a cementitious grout.

PREVIOUSLY-PAINTED SURFACES

Old coatings must be tested for lifting. If lifting occurs, then remove the lifted coating. Either sweep blast, or use a rotary wire wheel to lightly roughen the surface before applying Wise Chem. A sharp profile is required.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Normal	15–27°C (60–80°F)	15–27°C (60–80°F)	15–27°C (60–80°F)	0–80%
Minimum	10°C (50°F)	7°C (45°F)	7°C (45°F)	0%
Maximum	32°C (90°F)	43°C (110°F)	43°C (110°F)	85%

The substrate temperature must always be a minimum of 3°C (5°F) above dew point during the application of this coating. Dew or rain on this product (while uncured) may cause surface blush or browning, and may impair its cure and the adhesion of subsequent coats.

E-212-F CURING SCHEDULE

Surface Temperature and 50% Relative Humidity	Dry to Recoat and Topcoat	Time to Immersion	Final Cure
7°C (45°F)	48 hours	60 hours	200 hours
16°C (60°F)	16 hours	24 hours	180 hours
24°C (75°F)	8 hours	16 hours	168 hours
32°C (90°F)	6 hours	12 hours	120 hours

Exposure to unacceptably low temperatures and/or high humidities during, or immediately after, application may result in incomplete cure and surface contamination. Either condition could be detrimental to the subsequent intercoat adhesion.

PHYSICAL PROPERTIES

Colour	White
Finish	Flat
General Type	Amine epoxy
Pot life	4 hours at 25°C (77°F) and 50% relative humidity
Primers	Self-priming
Solids Content	93% ±0.5% by volume
Top Coat	Not recommended
VOC Values	118.8 g/L (0.99 lb/gal) USA-EPA Method 24

PERFORMANCE DATA

Adhesion	ASTM D4541—Excellent
Salt Spray Resistance	ASTM B117—Very good
Direct Impact Resistance	ASTM D2794—Very good
Abrasion Resistance	ASTM D4060—Very good
Humidity Resistance	ASTM D2247—Excellent
Water Immersion	ASTM D1306—Excellent
Chemical Resistance	ASTM D1308—Very good



MIXING AND THINNING

MIXING

Material is supplied in two containers as a kit.

- Using a power agitator (such as a Jiffy® mixer) mix the two parts separately. Note: Part A is very thick, light grey, and heavily bonded. It may appear dry on the surface because the filler used will float and mass together on the top of the liquid. You may also notice a more fluid middle layer and a thick rubbery bottom layer. Mix Part A thoroughly before adding Part B.
- When Part A is homogenous, mix Part B separately, then combine Part B to Part A and mix them together thoroughly. Mix a complete batch in the proportions supplied. Once the batch has been mixed it must be used within the working pot life specified—approximately 4 hours.

RATIO

4:1 by volume (Part A: Part B).

RECOMMENDED MIXER TOOL

- 9.5 millimetres (0.375 inch) electric chucked power tool
- Jiffy mixing tool—LM, HS, ES, PS or HD

THINNING

Thinning is not normally required or desired. However, at extreme environmental conditions, up to 1.8 litres (0.5 gallon) of methyl ethyl ketone per 18.9 litres (5 gallons) may be added. Do not thin more than allowed by local environmental legislation.

APPLICATION EQUIPMENT

SPRAY APPLICATION (GENERAL)

This is a heavily filled coating; all in-line filters should be removed prior to application. Low or high temperatures may require adjustment in application techniques to achieve a maximum film build. Apply a mist-coat on the first pass. If solvent is added, allow adequate time for evaporation before building to desired thickness. Spray equipment has been found satisfactory from the following manufacturers: Graco®, DeVilbiss®, and Binks®.



CONVENTIONAL SPRAY

Not recommended.

AIRLESS SPRAY

Pump Ratio	40:1 to 60:1
GPM Output	11.3 L/min minimum
Material Hose	9.5 mm (0.375 in) inner diameter minimum
Tip Size	0.381 mm (0.015 in), self-cleaning, reversible
Filter Size	Remove all filters

BRUSH AND ROLLER (GENERAL)

May require multiple coats to achieve correct film thickness, and/or hiding. Avoid excessive rebrushing and/or rolling.

BRUSH

Use a medium synthetic bristle brush.

ROLLER

Use a clean synthetic roller with a inch 6–12 millimetres (0.25–0.50 inch) nap. Prior to use, new rollers should be thoroughly wet with the specified thinner and spun vigorously to remove loose fibers.

CLEANUP

Methyl ethyl ketone or lacquer thinner.

THEORETICAL CONCRETE COVERAGE AT 500 MICRONS (20 MIL)

1 gal kit	6.9 m ² (74.5 ft ²)
5 gal kit	34.6 m ² (372.7 ft ²)
Wet Film Thickness	500 microns (20 mil)
Make allowances for loss due to spills, waste, over-spray, irregular surfaces, etc., typically 5–10%.	

THEORETICAL STEEL COVERAGE AT 250 MICRONS (10 MIL)

1 gal kit	13.8 m ² (149.1 ft ²)
5 gal kit	69.2 m ² (745.5 ft ²)
Wet Film Thickness	203–254 microns (8–10 mil)
Make allowances for loss due to spills, waste, over-spray, irregular surfaces, etc., typically 5–10%.	

SAFETY GUIDELINES**SAFETY OVERVIEW**

This product is intended for use only by professional applicators in industrial situations in accordance with all cautionary safety statements on this product datasheet, on the container and on the product safety data sheet. All work involving the application and use of this product must be performed in compliance with all relevant local, state, and national health, safety and environmental standards and regulations.

VENTILATION

It is of the utmost importance for the safety of the applicator and the proper performance of this coating that good ventilation with dry, fresh air be provided in enclosed areas to remove all solvent vapours. Since all solvent vapours are heavier than air, ventilation ducts must reach to the lowest portions of the enclosed areas as well as into any structural pockets. Ventilation must be provided throughout the cure period.

PRECAUTIONS

During the mixing and application process, be aware of the combustible liquid and vapour. If welding or flame cutting is performed on metal coated with this product, dust and fumes emitted will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

Binks® and DeVilbiss® are registered trademarks of Finishing Brands Holdings Inc.
Graco® is a registered trademark of Graco Minnesota Inc.
Jiffy® is a registered trademark of Jiffy Mixer Enterprises, Inc.
Wise Chem® is a registered trademark of Wise Chem LLC.

Note: The physical and chemical properties listed represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice.

Product Type: 109

Commodity Code: 07030