

AUPO00036 Dulux Powder Coatings E-Prime™

Introduction

Part A
953 line

Description and Image

E-Prime™ powder primer is an epoxy based thermosetting powder primer designed to provide excellent adhesion to appropriately prepared aluminum substrates and provide excellent intercoat adhesion with the Zincshield® base coat on ferrous (steel) substrates. It is a key component of the Dulux Alumi Shield™ and Dulux Steel Shield™ warranty systems suitable for use with top coats from the Fluoraset®, Duratec®, Electro®, Duralloy®, and Precious® ranges.

Ideal for warranty grade applications under specified powder topcoats on interior and exterior projects over appropriately prepared,

- Architectural aluminium including perforated and expanded aluminium,
- Steel (mild), bright/semi bright steel, black steel and blue steel.

E-Prime™ is supported by Alumi Shield™ and Steel Shield™ warranties* when applied by Dulux Accredited Powder Coaters to the warranty specification on recommended project types and conditions.

*Subject to the terms and conditions of the relevant product warranty. Please contact your local Dulux representative for further details.

IMPORTANT INFORMATION - CARE & MAINTENANCE of the topcoat POST INSTALLATION.

A SIMPLE AND REGULAR MAINTENANCE PROGRAM MUST BE IMPLEMENTED AND RECORDED IN LINE WITH THE DULUX POWDERS CARE AND

MAINTENANCE SCHEDULE TO;

1. Comply with Dulux warranty requirements,
2. Ensure the life of your asset is maximised,

It is important that architects, specifiers, powder coaters, fabricators, manufacturers and builders ensure they reinforce this message to the end asset owner.

For more information refer to the Dulux Care and Maintenance brochure available at duluxpowders.com.au/tech-advice or call 13 2499.

Features and Benefits

- Alumi Shield™ warranties on perforated and expanded aluminium available with E-Prime™ powder primer.
- Steel Shield™ warranty - up to 10 year steel corrosion warranty.
- Excellent film integrity.
- No solvents or solvent emissions & TGIC free.
- Excellent adhesion to appropriately prepared aluminium substrate.
- Excellent intercoat adhesion with Zincshield™ and specified powder topcoats.
- Recycle via appropriate application reclaim processes.

Product Uses

E-Prime™ has been specifically designed for coating pre-treated aluminium substrates and over appropriately prepared ferrous (steel) substrates as part of a Zincshield® base coat and suitable powder topcoat system.

Suggestions for use include ironwork, street and garden furniture, gas cylinders and tanks, agricultural machinery, transport (trailers), valves, and transformers.

It is ideal as a primer with an appropriately specified topcoat for;

Exterior projects (All BCA Classes),

- All commercial buildings,
- All residential buildings,
- Non-habitable or Ancillary.

Interior projects (All BCA Classes);

- All commercial buildings,
- All residential buildings,
- Non-habitable or Ancillary.

*Subject to the terms and conditions of the relevant product warranty.

Care and Maintenance

PACKAGING PRE-INSTALLATION.

Attention to packing is essential for powder coaters and fabricators to ensure that all powder coated sections are received in good condition. When packing powder coated assets, it is recommended that;

- Sections must be adequately cooled prior to packing; the metal temperature must not exceed 40°C on packing.
- Appropriate protective wrapping is recommended prior to packing to avoid damage during transport. It is recommended these are tested prior to use to confirm they are suitable.
- If protective tapes are used, ensure that the tape will remain removable following transport, fabrication and installation and not irreversibly mark or damage the coating. Tapes should be used in accordance with the manufacturer's instructions and only remain in contact for the minimum amount of time. It is recommended these are tested prior to use to confirm they are suitable.
- Packed metal should be kept away from direct sunlight and moisture to avoid coating defects.

CARE & MAINTENANCE POST INSTALLATION

When applying sealants take care to ensure the sealant doesn't come into contact with the powder coating film. If it does it must be immediately cleaned off in accordance with the Dulux Care and Maintenance procedure.

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Powder Properties

Film Build Recommended 80µm, range 60-100µm.	Coverage 8-10 m²/kg corresponds to 80µm cured film thickness when fully reclaiming over sprayed powder in accordance with Dulux recommendations.
Shelf Life 2 years from date of manufacture if stored at < 25 °C in dry conditions.	Colour Range Grey

VOCs (Volatile Organic Compounds)
Not formulated with VOCs and no VOCs added.

Cure Schedule		
Metal Temp (°C):	Time (minutes):	Comments:
210	8 mins minimum	Metal temperature.
200	10 mins minimum	Metal temperature.
190	15 mins minimum	Metal temperature.
150	5 mins minimum	Metal temperature - GREEN or PARTIAL CURE. When applying subsequent coats of solid and pearlescent solid colours you can partially cure for 5 minutes at 150°C metal temperature. (often referred to as a green cure). You must then fully cure the combined coating system for a minimum of 200°C for 10 minutes metal temperature or the topcoat curing schedule if longer than 10 minutes. IMPORTANT NOTE; When applying texture, ripple, or hammer topcoats you must fully cure E-Prime at 200°C for 10 minutes metal temperature. Failure to do so may result in a poorly defined pattern.

Coating Performance Guide

Heat Resistance Testing
Excellent resistance to 120°C continuous service conditions. Surfaces are not designed to be touched or mechanically abraded above 50°C.

Humidity Testing	Steel	
100% Relative Humidity (RH) at 38°C	Excellent resistance to blistering for 1000 hours on mild with a 3 coat system according to ASTM D2247	
Mechanical Testing		Performance Rating
Impact Resistance (ASTM D5420)		
Abrasion Resistance (ASTM D968 falling sand test method)		
Pencil Hardness (ASTM D3363)		Pass - Min 2H: no rupture of film
Chemical Resistance Testing		Performance Rating
Mortar		
Methylated Spirits		Resistant
Isopropyl Alcohol (IPA)		Resistant
Acid		
Alkali		
Stronger solvents		Avoid contact
Include Specular Light Reflectance information? Yes		
Specular Light Reflectance		
Specular light reflectance values for powder coatings are below 10% for all Dulux Powder coating ranges. Surfaces with a lower specular reflection produce less glare as they scatter or absorb a greater portion of the incoming light. For further information on Specular Light Reflectivity including exact specular reflectance values for each colour refer to Dulux Colour selectors or visit duluxpowders.com.au/spec-solutions		

Application

Surface Preparation

PREPARATION FOR ALUMINIUM SUBSTRATES

Etch;

- The etch process is an important stage of pre-treatment and close consultation with your pre-treatment supplier is strongly recommended to ensure optimum adhesion & corrosion resistance is obtained.
- Etch rates must be a minimum of 1gm/m².

Chrome Conversion Coatings;

- Chrome conversion weights must be a minimum of 431mg/m².

Chrome-free conversion coatings;

- Chrome-free - refer to your pre-treatment supplier as currently no standards address chrome-free.

Final Deionised Water Rinse;

- The conductivity of the final rinse water draining from the aluminium articles must be less than 30 micro Siemens/cm² at 20°C.

Post rinse dry off temperature - consult your pre-treatment supplier but generally;

- < 75° C for chrome pre-treatment,
- < 120° C for chrome-free pre-treatment.

Pre-treated aluminium must be handled very carefully with clean lint-free gloves and powder coated within the time specified by the pre-treatment supplier - this is generally within 16 to 48 hours.

Dulux Accredited Powder Coaters must comply with the metal pre-treatment guidelines set out in the Accredited Alumi Shield™ Manual.

PREPARATION FOR STEEL SUBSTRATES.

1. Wash and degrease all surfaces to be coated in accordance with AS1627.1 with a free-rinsing, neutral/alkaline detergent, in strict accordance with the manufacturer's written instructions and all safety warnings.
2. Wash with fresh potable water and ensure that all soluble salts are removed. Testing if required can be done in accordance with AS 3894.6 for the determination of residual contaminants.
3. Grind all sharp edges with a power tool to a minimum radius of 2mm.
4. Hand or power tool clean welds to AS1627.2 to remove roughness. Remove filings, preferably by vacuum.

5. Abrasive blast clean all steel surfaces to be powder coated in accordance with AS 1627.4 to the visual cleanliness standard of SA 2.5. Use a medium that will generate a surface profile of 35 to 65 microns. In situations where it is not possible to prepare your item on all surfaces as described above, for long term protection against corrosion it is strongly recommended whenever possible, that an alternative substrate such as aluminium be considered. Failure to suitably prepare your steel substrate may void your Steel Shield™ Warranty.
6. The steel must be coated within 4 hours of blasting and stored in an area which is clean and dry.

Dulux Accredited Powder Coaters must comply with the metal pre-treatment guidelines set out in the Accredited Steel Shield™ Manual.

Application Procedure and Equipment

APPLICATION

Powder must be < 2 years from date of manufacture and stored at < 25 °C in dry conditions.
Application is generally by electrostatic spray.

Theoretical Coverage rate at recommended film thickness:

A coverage rate of 8-10m²/kg corresponds to 80µm cured film thickness assuming minimal loss i.e., over sprayed powder is reclaimed or recycled, sieved and mixed with virgin (fresh) powder under controlled conditions – a general rule of thumb is < 20% of reclaim powder continuously added to the fresh (virgin) powder to maintain a consistent finish. Extra care should be taken with reclaiming blended products. Practical coverage rates will vary due to such factors as method of application, surface profile and texture.

Apply with equipment and control systems to enable correct metal preparation and control of the application and curing conditions. Dulux Accredited Powder Coaters must comply with recommendations as set out in the Accredited Applicator Manuals.

- 1a) For fluidised bed, ensure uniform fluidisation of powder. Powder found to be compacted may require fluidising for a few minutes prior to coating, powder should resemble a rolling motion.
- 1b) Box feeders can be used.
- 2 Apply by electrostatic spray.
- 3 Cure as per recommendations outlined above. Air temperatures exceeding 220°C may result in irreversible colour & gloss variation in light and bold colours and excessive temperatures may result in irreversible damage to the powder coating film.
- 4 Test for cure of the coating by contact with a drop of PGMEA for 30 seconds. Surface should be wiped dry and left for 60 seconds and then checked for softening. Only slight softening and minimal colour transfer to test cloth should occur.

SPECIFICATIONS

Specifications for all approved substrates are available that detail full coatings systems required including where primers are required. These include;

On Aluminium;

Powder Primers may be necessary on appropriately pre-treated perforated and expanded aluminium for a Alumi Shield™ Warranty as detailed below;

- a. Interior: General Interior conditions (E-Prime™ base coat not mandatory); Moderate Interior (E-Prime™ basecoat mandatory).
- b. Exterior: Mild (E-Prime™ base coat not mandatory); Severe: (E-Prime™ base coat mandatory).

On Mild Steel

Powder Primers are required for all Steel Shield™ Warranties on appropriately prepared mild steel substrates as detailed below:

- a. In Mild (Medium) exterior and Moderate Interior (medium) environments a 5 year corrosion warranty is available with a Zincshield® and the specified topcoat system.
- b. In Mild (Medium) exterior and Moderate Interior (medium) environments a 10 year corrosion warranty is available with a Zincshield®, E-Prime™ and the specified topcoat system.

For more information about all specifications for aluminium and mild steel substrates call 13 2499 or visit duluxpowders.com.au

Health and Safety

SDS Number

DLXGHSEN002725 (Hazardous and Dangerous Goods)

Using Safety Precautions

The SDS is an integral part of using this product as it contains information on the potential health effect of exposure, personal protective equipment needed and other relevant SH&E information.

For detailed information, refer to product label and the current Safety Data Sheet available at duluxpowders.com.au or call 13 2499.

Please refer to SDS Link. In case of emergency, please call 1800 220 770.

Disclaimer

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Unless Dulux has provided you with a customised, project-specific specification, this Data Sheet does not represent that any particular product or product system will be suitable for your project.

Any information provided in this Data Sheet is given in good faith and is believed by Dulux to be correct at the time of publication. Products and coating systems can be expected to perform as indicated in this Data Sheet, provided the substrate is in good condition, the coatings are applied by a suitably experienced and skilled applicator, and the preparation, application and maintenance is followed strictly as set out in this Data Sheet, and as recommended on the applicable Safety Data Sheets for the relevant products, available from www.duspecplus.com.au. Climatic conditions at application time can affect product suitability and performance.

The correct colour or colour match is the responsibility of the applicator. Colours will change over time and Dulux does not guarantee that the same colour newly mixed will match a colour applied earlier which has been subjected to weathering or other change elements. No product colour is guaranteed against colour change.

Where any liability of Dulux in respect of this Data Sheet cannot by law be excluded, Dulux's liability is limited, as permitted by law and at Dulux's option, to resupply of the relevant products or services or to reimbursing the cost of those products or services.

WHERE LEAD MAY BE PRESENT: The asset manager is responsible for verifying the presence of lead and determining whether to remove or encapsulate the lead. If lead is present, the work must be done in strict accordance with AS 4361 Parts 1 and 2 and Worksafe Australia guidelines.