AUPO01362 Dulux Powder Coatings Duratec Elements$_2$® Textured Range

Introduction

Product Line	Technology
9E1 Line (Textured - Solid Colour) **9E2 Line (Textured - Blended)** **9E3 Line (Textured - Kinetic)**	**Super Durable Polyester**

Description and Image

The **Duratec Elements$_2$®** textured range are a collection of distinctive, highly mar and scuff resistant textured finishes built to withstand the elements, delivered with warranty grade advanced super durable polyester thermosetting powder.

Available in a comprehensive range of on trend distinctive core colours including popular COLORBOND® steel colours.

Products that are bonded are delivered with Kinetic® Technology, which uses a process to optimise the aesthetic effect of many of our pearlescent finishes. These finishes contain pearlescent and/or metallic pigments that produce a characteristic effect when bonded to powder particles. The process delivers a more consistent dispersion of particles across the surface resulting in a unique pearlescent or metallic lustre.

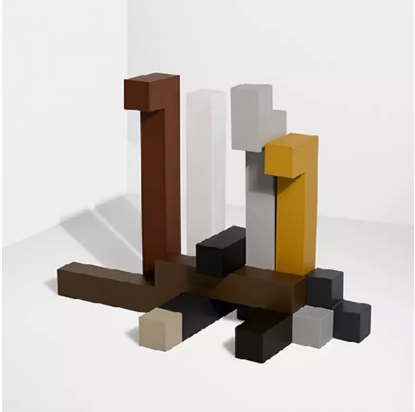
Ideal for warranty grade applications over:
- Architectural aluminium including perforated and expanded aluminium.
- Steel (mild), bright/semi bright steel, black steel and blue steel.

Duratec Elements$_2$® can also be used on the following metals but these are not warranted:

- Galvanised steel, stainless steel and Zincalume®.

*The **Duratec Elements$_2$®** textured range is supported by Alumi Shield™ and Steel Shield™ warranties when applied by a Dulux Accredited Powder Coater to the warranty specification on recommended project types and conditions.

Zincalume is a registered trade mark of Bluescope Steel Limited.



Features and Benefits

- Super durable polyester thermosetting powder
- Extensive range of on trend textured finishes, including solid COLORBOND® colours
- Excellent colour retention
- TGIC free, not formulated with VOCs and no VOCs added
- Supported by Alumi Shield™ and Steel Shield™ warranties when applied by Dulux Accredited Powder Coaters
- Ideal for areas where additional mar-resistance is critical
- Ideal for use on environments greater than 10m from the high tide mark
- Recycle via appropriate application reclaim processes

Product Uses

The **Duratec Elements$_2$®** textured range has been developed for use on a wide range of metal substrates including, most architectural aluminium applications such as window and door system, louvres, balustrades, sunshades, perforated screen, curtain walls, shop fronts, furniture and shelving.

The **Duratec Elements$_2$®** textured range is ideal for areas where additional mar-resistance is critical. It is designed to reduce the visible mar and scuffing that can happen during transportation, fabrication, onsite during construction and service life when compared to smooth powder coat finishes.

The **Duratec Elements$_2$®** textured range is suitable for coastal environments >10m from the high tide and is NOT suitable in strongly acidic or caustic environments so the pH must be between 5 and 9.

It is ideal for:

Exterior projects (All BCA Classes):

- All commercial buildings.
- All residential buildings.
- Non-habitable.

Interior projects (All BCA Classes):

- All commercial buildings.
- All residential buildings.
- Non-habitable.

Warranties, Material and Look

Warranties

For full details on Alumi Shield™ and Steel Shield™ warranties including terms and conditions visit **duluxpowders.com.au/warranties**

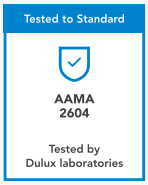
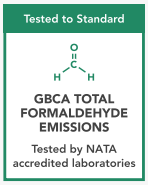
Dulux AccreditedPowderCoater

Dulux Accredited Powder Coaters

Only Dulux Accredited Powder Coaters are able to issue our Dulux Alumi Shield™ and Steel Shield™ warranties after demonstrating their capability to meet stringent quality conditions and international standards. Warranties are only valid when applied by a Dulux Accredited Powder Coater to the warranty specification on recommended projects, and subject to specified warranty terms and conditions.

For more information visit **duluxpowders.com.au/accredited**

Standards And Certifications

				
Exceeds the performance requirements of AAMA 2604	Exceeds the performance requirements of AS 3715	Meets the Total VOC emissions rate requirement of GBCA	Meets the formaldehyde emissions rate requirement of GBCA	Complies with RoHS3 (EU Directive 2015/8631)
				
Group Classification Number 1-S in accordance with the NZ Building Code	Group Classification Number 1 in accordance with the NCC Building Code of Australia			

Standards and Certifications

For full details on these standards and certifications visit **duluxpowders.com.au/spec-solutions**

Care and Maintenance

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.

Post installation

Application of sealants

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.

Care and Maintenance Program

A simple and regular care and 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 24 99**.

Precautions and Limitations

Precautions and Limitations

1. Products in this range are only available in colours which meet Dulux Powder Coatings pigmentation criteria. Strong, bold colours may not necessarily meet these criteria and should be referred to Dulux Powder Coatings before specifying.
2. It is recommended that each project is coated with the same batch of powder by the same applicator and if possible at the same time. As a result of possible wide application variations and oven curing conditions, some products and colours may show variation between Dulux Powder Coatings prepared samples and production applied material. Therefore, it is the applicator and/ or their customer's responsibility to ensure the product conforms to their requirements. Note: This is of greatest importance for large flat visible surfaces such as cladding – please refer to **duluxpowders.com.au/spec-solutions** for best advice on coating cladding.
3. Not recommended for components which are exposed to constant temperatures exceeding 120°C. Powder coated surfaces are not designed to be touched or mechanically abraded above 50°C.
4. Not recommended for post fabrication processes such as post-forming, zipping for double or triple glazing or punching. Many post fabrication processes can impede achievement of a continuous layer of pre-treatment and the minimum film build of powder coating. Consult the relevant guideline or regulation such as the building code or window association for information on mitigating any potential damage that could be caused by post fabrication processes.
5. Cutting and drilling must be done with very sharp saws, drills, etc., as blunt tools will likely result in chipping. Cutting lubricants must be cleaned off as per the Dulux Care & Maintenance instructions. For more information refer to the Dulux Care and Maintenance brochure available at **duluxpowders.com.au/tech-advice** or call **13 24 99**.

Design Considerations

It is recommended that any item that is coated should be designed and fabricated using AS 2312.1 and the relevant building code as guides.

The following design elements should be avoided: narrow crevices, poor air circulation, depressions, sharp edges and corners, large flat ledges (not window ledges), intermittent welding, undrained flat surfaces, unsealed hollow sections, flat surfaces in loose contact where moisture may be drawn in between them by capillary action and contact between dissimilar metals, e.g. with screws, rivets, etc.

Take care if non-metallic substrates are required to be or cannot avoid being powder coated, e.g. thermal break strips in double or triple glazing. On these non-metallic surfaces powder coatings may not adequately adhere and the final visual appearance may not be acceptable.

When aluminium and steel items are exposed to interior and exterior environments it is essential that should only one side of a section of metal be coated, or if a section is cut exposing the raw metal, they must be sealed to protect the non coated area from the environment, i.e. not exposed to moisture, air and excessive heat. Should the seal fail, and a claim is made for an Alumi Shield™ or Steel Shield™ warranty project the warranty for the area affected will be void as the integrity of the seal is not the responsibility of Dulux.

Powder Properties

Gloss Level **Flat < 10 at 60°**	Specific Gravity **1.2 - 1.7 (g/cm³) depending on colour**
Film Build **Recommended 80µm, range 80 to 120µm.** **NOTE: For optimum coverage and colour consistency white & light colours require a tighter film build range of 80 to 100µm.**	Coverage **8 to 10m²/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 bag is sealed and stored below 25 °C in dry conditions.**	Colour Range **A comprehensive range of stocked textured colours. If you cannot find the colour you require Dulux offer a Custom Colour Service. Call 13 24 99.**

VOCs (Volatile Organic Compounds)

Not formulated with VOCs and no VOCs added.

Cure Schedule

Metal Temp (°C):	Time (minutes):	Comments:
210°C	**4 minutes**	**metal temperature (all colours except Weathered Steel)**
200°C	**5 minutes**	**metal temperature (all colours except Weathered Steel)**
180°C	**8 minutes**	**metal temperature (all colours except Weathered Steel)**
210°C	**8 minutes**	**metal temperature (for colour Weathered Steel)**
200°C	**10 minutes**	**metal temperature (for colour Weathered Steel)**
180°C	**15 minutes**	**metal temperature (for colour Weathered Steel)**

Coating Performance Guide

Exterior Durability Testing

Excellent resistance to weathering - Meets AS 3715 minimum 1 year Alunga exposure and AAMA 2604 5 years Florida exposure.

Heat Resistance Testing

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

Adhesion Testing

Test	Performance Rating
Dry Cross Hatch Adhesion (ASTM D3359)	**Pass - on suitably prepared substrates (Aluminium and Steel)**

Corrosion Testing

	Aluminium	Steel
Acetic Acid Salt spray (AASS)	**(3,000 hours according to AS 2331.3.2)**	**N/A**
Neutral Salt Spray (NSS)	**(3,000 hours according to AS 2331.3.1)**	**(1,000 hours according to AS 2331.3.1 with a 3-coat system)**
Cyclic Corrosion Testing (CCT)	**(1,500 hours according to ASTM G85 annex 5)**	**N/A**

Humidity Testing

	Aluminium	Steel
100% Relative Humidity (RH) at 38°C	**Excellent resistance to blistering for 3000 hours on pre-treated aluminium according to ASTM D2247**	**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)	**Pass - < 9 Nm (< 80 in/lb) by direct impact.**
Abrasion Resistance (ASTM D968 falling sand test method)	**Pass - 40 L of sand (Abrasion Coefficient > 20)**
Pencil Hardness (ASTM D3363)	**Pass - Min H: no rupture of film**

Chemical Resistance Testing

	Performance Rating
Mortar	**Pass (24 hour Pat test test ref. EN 12206-1)**
Methylated Spirits	**Resistant**
Isopropyl Alcohol (IPA)	**Resistant**
Acid	**Resistant to weak acid at ambient temperatures - avoid contact**
Alkali	**Resistant to weak alkali at ambient temperatures - avoid contact**
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**

VOC Emissions Testing

Body	Test	Specification	Performance Rating
Green Building Council of Australia	**ASTM D5116-2017**	**Total VOC Pass: <0.500 mg/m²/hr**	**Total VOC Rating: <0.100 mg/m²/hr**
Green Building Council of Australia	**ASTM D5116-2017**	**Formaldehyde Pass: <0.100 mg/m²/hr**	**Formaldehyde Rating: <0.050 mg/m²/hr**

VOC Emissions Testing

For full details on these VOC Emissions Testing 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 with a minimum of 2gm/ m² for applications on perforated and expanded aluminium.

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.

Alumi Shield™ warranty compliance

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

Preparation for Steel Substrates

Wash and degrease all surfaces

• 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.
• 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.

Grind all sharp edges

• Grind all sharp edges with a power tool to a minimum radius of 2mm.

Clean welds to remove roughness

• Hand or power tool clean welds to AS1627.2 to remove roughness. Remove filings, preferably by vacuum.

Abrasive blast clean all surfaces to be powder coated

• 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.

Coat within 4 hours of blasting

• The steel must be coated within 4 hours of blasting and stored in an area which is clean and dry.

Steel Shield™ warranty compliance

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

Application Procedure and Equipment

Ensure the powder is within date and stored correctly

• Powder must be < 2 years from date of manufacture and stored at < 25 °C in dry conditions.

Application Method

Apply with equipment and control systems to enable correct metal pre-treatment and control of the application and oven condition.
1 a) For fluidised beds, 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.
1 b) Box feeders can be used when spraying bonded pearls and metallic powders, though it is not best practice. Box feeders are not recommended for spraying blended pearls and metallic powders.
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.

Ensure film thickness advice is adhered to

• A coverage rate of 8 to 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.
• Light colours may require a higher minimum film build for optimum coverage and colour consistency.

Alumi Shield™ and Steel Shield™ warranty compliance

• Dulux Accredited Powder Coaters must comply with recommendations as set out in the Accredited Applicator Manuals.
• Specifications detailing full coatings systems for all approved substrates must be followed. These may include the requirement to coat with primers where required. For more information about all specifications for aluminium and mild steel substrates visit duluxpowders.com.au or call **13 24 99**.

Solvent Test for Cure

- 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.

Recycling

1. One of the significant benefits of powder coatings over other types of finishes is the ability to collect and reuse the oversprayed powder that doesn't initially adhere to the items being coated. Under controlled conditions, recycling overspray in this way can in fact achieve over 95% recovery if the system is optimised, so can present considerable production efficiencies. And as an environmentally friendly waste solution, it's well worth considering if powder coat recycling is suitable for your application process.
2. When reclaiming or recycling oversprayed powder it must be 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.
3. Extra care should be taken when recycling overspray from pearlescent powder coatings as the different compositions of bonded and blended powders may have a significant impact on the final appearance.
4. For more information refer to the Dulux Tech Advice brochure on Recycling powder coat overspray at **duluxpowders.com.au/tech-advice** or call **13 24 99**.

Health and Safety

SDS Number	SDS Link
9E1, 9E2 & 9E3 Lines - DLXGHSEN004348 (non-hazardous)	**View SDS Link**

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 Safetey Data Sheet on duluxpowders.com.au or call the Advice line on **13 24 99**.

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

Disclaimer

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.