



Canning Vale Powder Coaters

Specifications Guide

Preparation recommendations based on
substrate and installation location

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Purpose

The Purpose of this document is to outline the correct specification that is recommended to be followed dependent on selected substrate by the customer.

Scope

This document has been designed to guide the wide variety of work that runs through CVPC factories. Information is general in nature and intended to advise the preferred specifications in line with Australian Standards and Powder manufacturers. For special, non-generic scopes please contact CVPC for further clarification.

Disclaimer

This document is a guide to advise our recommended specifications based on Australian standards. Required specifications for your scope must be clearly outlined on your PO's (Purchase Orders).

Warranty

Warranty scopes need to be approved by powder manufacturers and specifications need to be approved prior to commencement of the job, Approved specifications may alter depending on installation location, substrate, and construction considerations.

Referenced Documents

The following documents are referred to in this document.

Document	Name
AS 4506	Metal Finishing – Thermoset powder coatings
AS 1627.1	Metal Finishing – Preparation and pre-treatment of surfaces, Removal of oil, grease, and related contamination
AS 1627.4	Metal Finishing – Preparation and pre-treatment of surfaces, Abrasive blast cleaning of steel.
AS 3715	Metal Finishing – Thermoset powder coatings for architectural applications of aluminium and aluminium alloys
ISO 8501-1	Preparation of Steel Substrates
AS 1554	Structural steel welding
AAMA2603	Powder performance
AAMA2604	Powder Performance
Interpon	Accredited applicator manuals
Dulux	Alumi Shield Manuals Steel Shield Manuals

Condition Categories

Category	Name
C1	Interior Mild (Inside and not subject to moisture condensation)
C2	Interior Moderate (Inside but subject to moisture condensation)
C3	Exterior (Rural, Urban, Light Industrial, Mild Marine)
C4	Tropical
C5	Severe Exterior (Heavy Industrial, Coastal Marine)

Aluminium Extrusion

It is important that Aluminium extrusions be correctly pre-treated prior to powder coating. Failure to do so will result in poor long-term quality.

Warranties

Warranties can be offered by powder suppliers but need to be pre-approved prior to commencement.

Construction Considerations

- Clean mill finish series 6000 aluminium must be utilised.
- Material construction must fit in our chemical pre-treatment baths, Bath sizes are 6.5m Long, 580mm wide and 1m deep.
- Anodised or pre powder coated aluminium can be recoated but as it cannot be pre treated as per below we are unable to guarantee quality and cannot offer any warranties.
- Aluminium that has been handled poorly and or is suffering from “white rust” will require additional sanding prior to treatment. Quality cannot be guaranteed, and warranties cannot be offered.

Recommended Specifications

C1 to C3		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to provide corrosion of the substrate
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Colour Topcoat Application	AAMA 2603 grade of powder or lower

C4 to C5		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to provide corrosion of the substrate
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Colour Topcoat Application	AAMA 2604 grade of powder or above

Referenced Standards

- AS 4506
- AS 3715
- AAMA 2603
- AAMA 2604

Welded Aluminium Frames

Barrier primers are required for welded aluminium frames to help with corrosion prevention as conversion coatings do not take to welded areas as well as non-welded sections.

Warranties

Warranties can be offered by powder suppliers but need to be pre-approved prior to commencement.

Construction Considerations

- Series 6000 aluminium must be used
- Good welds in accordance with AS 1554
- All edges must be rounded to avoid long term delamination.
- Clean material must be used
- Material construction must fit in our chemical pre-treatment baths, Bath sizes are 6.5m Long, 580mm wide and 1m deep.
- Welded aluminium frames must have sufficient drain holes drilled with no welded sealed areas to aid with air drying. Failure to do so will result in poor topcoat quality.
- Anodised or pre powder coated aluminium can be recoated but as it cannot be pre treated as per below we are unable to guarantee quality and cannot offer any warranties.
- Aluminium that has been handled poorly and or is suffering from “white rust” will require additional sanding prior to treatment. Quality cannot be guaranteed, and warranties cannot be offered.

Recommended Specification

C1 to C3		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to etch substrate, increasing surface area and aiding coating adhesion
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Epoxy Primer Application	Barrier primer
5	Colour Topcoat Application	AAMA 2603 grade of powder or below

C4 to C5		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to etch substrate, increasing surface area and aiding coating adhesion
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Epoxy Primer Application	Barrier primer
5	Colour Topcoat Application	AAMA 2604 grade of powder or above

Referenced Standards

- AS 4506
- AS 3715
- AS 1544
- AMMA 2603
- AMMA 2604

Perforated Aluminium Panels

Specifications for perforated aluminium panels including decorative laser cut panels is dependent on installation location due to the large amount of sharp edges to ensure long term delamination is avoided.

Warranties

Warranties can be offered by powder suppliers but need to be pre-approved prior to commencement.

Construction Considerations

- All edges must be rounded to avoid long term delamination.
- Material construction must fit in our chemical pre-treatment baths, Bath sizes are 6.5m Long, 580mm wide and 1m deep.
- Welded aluminium frames must have sufficient drain holes drilled with no welded sealed areas to aid with air drying. Failure to do so will result in poor topcoat quality.
- Anodised or pre powder coated aluminium can be recoated but as it cannot be pre treated as per below we are unable to guarantee quality and cannot offer any warranties.
- Aluminium that has been handled poorly and or is suffering from “white rust” will require additional sanding prior to treatment. Quality cannot be guaranteed, and warranties cannot be offered.

Recommended Specifications

C1 to C2		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to provide corrosion of the substrate
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Colour Topcoat Application	AAMA 2603 grade of powder or below

C3		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to etch substrate, increasing surface area and aiding coating adhesion
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Epoxy Primer Application	Recommended for application to build film thickness on sharp edges (punched holes and welds) to prevent long term cracking and improve adhesion. Warranties may be able to be approved without primer however this will need to be pre-approved by powder manufacturer on a case-by-case basis.
5	Colour Topcoat Application	AAMA 2603 grade of powder or below

C4 to C5		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to etch substrate, increasing surface area and aiding coating adhesion
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Epoxy Primer Application	In accordance with OEM specifications
5	Colour Topcoat Application	AAMA 2604 grade of powder or above

Referenced Standards

- AS 4506
- AS 3715
- AMMA 2603
- AMMA 2604

Aluminium Cladding Panels

Due to different varieties of aluminium being used for aluminium cladding there are cases where conversion coatings do not take as well as others, as such it is recommended that barrier primers are used to aid with corrosion protection.

Warranties

Warranties can be offered by powder suppliers but need to be pre-approved prior to commencement.

Construction Considerations

- Clean material must be utilised.
- Material construction must fit in our chemical pre-treatment baths, Bath sizes are 6.5m Long, 580mm wide and 1m deep.
- Welded aluminium frames must have sufficient drain holes drilled with no welded sealed areas to aid with air drying. Failure to do so will result in poor topcoat quality.
- Anodised or pre powder coated aluminium can be recoated but as it cannot be pre treated as per below we are unable to guarantee quality and cannot offer any warranties.
- Aluminium that has been handled poorly and or is suffering from “white rust” will require additional sanding prior to treatment. Quality cannot be guaranteed, and warranties cannot be offered.

Recommended Specifications

C1 to C2		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to provide corrosion of the substrate
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Epoxy Primer Application	Recommended but not mandatory
5	Colour Topcoat Application	In accordance with OEM specifications

C3 to C5		
1	Chemical Pre Treatment – Acid Etching	Utilised to etch substrate, increasing surface area and aiding coating adhesion
2	Chemical Pre Treatment – Conversion Coating	Utilised to etch substrate, increasing surface area and aiding coating adhesion
3	Water Rinse and Air Dry	Clean and dry the substrate prior to coatings
4	Epoxy Primer Application	In accordance with OEM specifications
5	Colour Topcoat Application	In accordance with OEM specifications

Additional Notes

It recommended that barrier primers are used in all locations as it helps to:

- Build film thickness and protection to cut edges, drill holes and fabrication areas
- some colours will have no depth and their opacity requires barrier primers to produce a solid, even, consistent colour.

Referenced Standards

- AS 4506
- AS 3715

Black Steel & Painted Steel

Black, Mild and Blue Coated steel must all be sandblasted prior to powder coating. Depending on installation requirements and location it may require 3 coats of powder after blasting for outdoor use.

Good preparation and primer coats are used to protect the substrate:

- Steel requires blasting to clean the surface and increase surface area prior to coating, if this is not done coating adhesion will be problematic.
- Powder topcoats are porous and offer no protection against moisture, the substrate will corrode if primers are not used.

Warranties

Some warranties can be offered on a case-by-case basis by powder suppliers. Barrier primer coats will be essential in obtaining any kind of warranty for this substrate and warranties need to be pre-approved prior to commencement.

Construction Considerations

- Good welds in accordance is AS1554
- As all items must be sandblasted prior to coating items must fit within the footprint of our sandblasting booths (5m Long, 1.8m High, 1.8m Wide)
- All items must have adequate holes or hanging points to allow us to process through our ovens.
- For any items over 250kg please contact us to discuss availability.

Recommended Specification

C1 to C3		
1	Sandblasting	Class 2.5 as per AS 1627 and ISO 8501-1
2	Zinc Primer Application	In accordance with OEM specifications
3	Colour Topcoat Application	In accordance with OEM specifications

C4 to C5		
1	Sandblasting	Class 2.5 as per AS 1627 and ISO 8501-1
2	Zinc Primer Application	In accordance with OEM specifications
3	Epoxy Primer Application	In accordance with OEM specifications
4	Colour Topcoat Application	In accordance with OEM specifications

Additional Notes

Scopes that do not follow the above specs are likely to suffer from quality issues.

Referenced Standards

- AS 1544
- AS 1627
- ISO 8501

Duragalv & Zinalume

Whilst these materials already have a form of corrosion protection it is essential that these substrates are cleaned and prepared correctly to ensure proper adhesion.

Drilled, cut, and welded areas often have no corrosion protection and it is recommended that zinc primers and barrier primers are used to protect these areas, failure to do so may result in quality issues.

Warranties

Some warranties can be offered on a case-by-case basis by powder suppliers. Barrier primer coats will be essential in obtaining any kind of warranty for this substrate and warranties need to be pre-approved prior to commencement.

Construction Considerations

- All items must have adequate holes or hanging points to allow us to process through our ovens.
- For any items over 250kg please contact us to discuss availability.
- Good welds in accordance is AS 1554

Recommended Specification

C1 to C3		
1	Cleaning	Solvent clean in accordance with AS 1627.1 to remove dirt, oil, grease.
2	Surface Prep	Light sand of welds and weld splatter
3	Zinc Primer Application	Zinc based primer to be applied in accordance with OEM specifications to any welded areas to aid in corrosion protection
4	Colour Topcoat Application	In accordance with OEM specifications

C4 to C5		
1	Cleaning	Solvent clean in accordance with AS 1627.1 to remove dirt, oil, grease.
2	Surface Prep	Light sand of welds and weld splatter
3	Zinc Primer Application	Zinc based primer to be applied in accordance with OEM specifications to any welded areas to aid in corrosion protection
4	Epoxy Primer Application	In accordance with OEM specifications
5	Colour Topcoat Application	In accordance with OEM specifications

Additional Notes

Whilst these substrates can be coated without the use of barrier primers it recommended that it is used as it helps to:

- Build film thickness and protection to raw steel cut edges, drill holes and fabrication areas
- some colours will have no depth and their opacity requires barrier primers to produce a solid, even, consistent colour.

Referenced Standards

- AS 1627
- AS 1554

Stainless Steel

Stainless steel already has corrosion protective properties however adhesion can be problematic. Surfaces must be clean and roughened mechanically to increase surface area prior to coating. Additional use of barrier primers is recommended as it is more adhesive than topcoats.

Warranties

Some warranties can be offered on a case-by-case basis by powder suppliers, though they will generally cover colour retention (topcoat performance) and not corrosion protection. Barrier primer coats will be essential in obtaining any kind of warranty for this substrate.

Construction Considerations

- For whip blasting items must fit within the footprint of our sandblasting booths (5m Long, 1.8m High, 1.8m Wide)
- All items must have adequate holes or hanging points to allow us to process through our ovens.
- For any items over 250kg please contact us to discuss availability.
- Good welds in accordance is AS 1554

Recommended Specifications

C1 to C5		
1	Surface Prep	Whip blast to class 2, In accordance with AS 4506
2	Epoxy Primer Application	In accordance with OEM specifications
3	Colour Topcoat Application	In accordance with OEM specifications

C1 to C5, Thin gauge items that are at risk of damage from blasting equipment.		
1	Cleaning	Solvent clean in accordance with AS 1627.1 to remove dirt, oil, grease.
2	Surface prep	Sanding or finishing in accordance with AS 4506
3	Epoxy Primer Application	In accordance with OEM specifications
4	Colour Topcoat Application	In accordance with OEM specifications

Referenced Standards

- AS 4506
- AS 1627
- As 1554

Hot Dip Galvanised

Hot Dip Galvanized (HDG) Steel is the best option regarding corrosion protection if steel substrates must be used. Fixing holes, laser cutting, etc. should be done prior to galvanizing.

HDG coatings offer excellent corrosion protection which is warranted by the galvanizer. If the powder coat is compromised after coating it can, over time, produce a white powder type of corrosion (white rust) underneath the powder coat which can cause the coating to sheet off if not repaired promptly. The substrate will not corrode for years if galvanized properly.

The downside to HDG is the surface finish which will be irregular, lumpy, and agricultural which powder coating will not hide. Even after heavy sanding and powder coating, drip lines, pinhead bubbles, lumps and bumps will always be visible on the finished product. This is normal and CV Powder Coaters are unable to prevent or rectify this.

Warranties

Some warranties can be offered on a case-by-case basis by powder suppliers, though they will generally cover colour retention and film integrity (topcoat performance) and not corrosion protection. Barrier primer coats will be essential in obtaining any kind of warranty for this substrate.

Construction Considerations

- For whip blasting items must fit within the footprint of our sandblasting booths (5m Long, 1.8m High, 1.8m Wide)
- All items must have adequate holes or hanging points to allow us to process through our ovens.
- For any items over 250kg please contact us to discuss availability

Recommended Specification

C1 to C5		
1	Whip Blast	Keys surface and removes quenching fluid used in the HDG treatment
2	Oven Outgassing	Prevents coatings from bubbling at curing stage
3	Epoxy Primer Application	In accordance with OEM specifications
4	Colour Topcoat Application	In accordance with OEM specifications

Additional Notes

- Powder coating HDG without applying a preliminary coat of barrier primer is not recommended as delamination and easy scratching occurs.
- All HDG powder coated product suffers from easier delamination even after proper preparation and application.
- Matt finish powders are recommended as gloss finishes will highlight irregularities and imperfection in the HDG surface.

Recoating

This section pertains to items that are categorised as a recoat, second-hand, used and or corroded items. The quality or consistency of the final powder coat finish cannot in any way be guaranteed and we will not be held responsible for any imperfections on the final coat.

Warranties

- Warranties cannot be offered for reworked material.
- Finish quality cannot be guaranteed for reworked material.

Disclaimer

- Corroded substrate, including white powder surface rust, will require extensive acid cleaning and sanding prior to powder coating (extra costs apply).
- All second-hand metal goods, including alloy and steel rims, must be delivered to us stripped of all plastics, rubber, stickers, valve stems, weights, etc – washed and cleaned with degreaser and detergent.
- Reworks of second-hand/used items will never be the same perfect finish as the original coating – some imperfections will always occur, and this cannot be avoided. Road grime, oils, moisture, and solvents can leach out of the substrate during curing, and it is impossible to pre-empt this – sometimes it does, sometimes it does not. Corroded areas will show through the powder coat as will grinding or reworked areas (extra costs apply).
- Items which have previously been powder coated may be unable to be blasted and will therefore have to be sprayed over the original coat. This will result in a thicker coat which has to be taken into consideration if there are caps, etc that need to be reapplied after the job is finished. CV Powder Coaters has no control over this and cannot guarantee the result.

Construction Considerations

- Items that need blasting must fit within the footprint of our sandblasting booths (5m Long, 1.8m High, 1.8m Wide)
- All items must have adequate holes or hanging points to allow us to process through our ovens.
- For any items over 250kg please contact us to discuss availability.

Recommended Specification

There is no recommended specification or Australian standard pertaining to this work, whilst we will work as closely as possible to the recommended spec for the substrate in this guide we cannot do so In all cases, as such specification must be made on case by case basis.



Canning Vale Powder Coaters

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