# CLEAN COLORBOND® ULTRA Steel

Revision 10 June, 2015

This literature supersedes all previous issues

**Prepainted - PP** **Structural - S**

## GENERAL DESCRIPTION

Clean COLORBOND® ULTRA prepainted steel, specifically designed by BlueScope, combines long term durability and exceptional corrosion resistance. To determine if warranties apply, please contact your nearest BlueScope sales office for advice.

## TYPICAL USES

Exterior building profiles in applications requiring excellent corrosion resistance. Suitable from moderate to severe marine or industrial environment. For material selection advice, please contact your nearest BlueScope sales office.

## AUSTRALIAN STANDARD

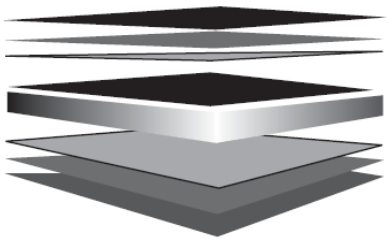
Paint Coating – AS/NZS2728 Type 4; Substrate – AS1397

## MALAYSIAN STANDARD

Paint Coating – MS2383 C4; Substrate – MS1196

## PRODUCT INFORMATION

| | |
|---|---|
| **PREFERRED SUBSTRATE** | ZINCALUME® G550S AZ200 steel (Aluminium/Zinc alloy-coated steel) |
| | ZINCALUME® G300S AZ200 steel (Aluminium/Zinc alloy-coated steel) (Refer Note 8) |
| **PRETREATMENT** | Corrosion resistant proprietary conversion coating |
| **PRIMER COAT** | Universal corrosion inhibitive primer. Nominal dry film thickness 5µm each side |
| **FINISH COAT** | Custom formulated super polyester paint system with high performance pigments. Nominal dry film thickness 20µm on the top or weather side. The finish coat can, if required, be applied to both sides to provide a double-sided product |
| **BACKING COAT** | Custom formulated Bass Grey. Nominal dry film thickness 10µm |
| **COLOUR** | A range of standard colours is available. Other specifically required colours may be available on request. |



Finish Coat (Nominal 20µm) (Refer Notes 4 & 5)
Universal Corrosion Inhibitive Primer (Nominal 5µm)
Conversion Coating

ZINCALUME® AZ200 Steel Substrate

Conversion Coating
Universal Corrosion Inhibitive Primer (Nominal 5µm)
Backing Coat (Bass Grey, Nominal 10µm) (Refer Note 6)

## DIMENSIONAL CAPABILITIES*

| ZINCALUME® G550S AZ200 STEEL | | ZINCALUME® G300S AZ200 STEEL | |
|---|---|---|---|
| **PREFERRED BASE METAL THICKNESS, mm*** | **MAXIMUM WIDTH, mm** | **PREFERRED BASE METAL THICKNESS, mm*** | **MAXIMUM WIDTH, mm** |
| 0.35, 0.55 | 1219 | 0.35, 0.55 | 1219 |
| 0.42, 0.48, 0.50, 0.60 | 1230 | 0.42, 0.48, 0.50, 0.60 | 1230 |
| 0.70, 0.75, 0.80 | 1219 | 0.70, 0.75, 0.80 | 1219 |

**Notes**

* These dimensions are a reflection of technical capability to produce. Any other sizes may be available on request

Supply conditions may be subject to dimensional restrictions and is subject to BlueScope Sales and Marketing confirmation.

Slitting and shearing available on request from BlueScope Sales Offices. For requirements outside the standard product range please contact your local Sales Office.

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## RESISTANCE TO DIRT STAINING

The change in appearance of normal coil-coated products due to weathering is expected to be minimal within one year of installation. Yet, the overall appearance change can be large in some environments, not as a result of changes in the paint system itself, but as a result of severe dirt pick-up which causes darkening of its surface. These effects are more pronounced on light colours than on dark colours. Some atmospheric dirt can actually become engrained into the surface of the paint, causing dirt staining which is difficult to remove.

**Clean COLORBOND® ULTRA steel** is **resistant** to **dirt pick-up** and more importantly, **RESISTANT** to **DIRT STAINING.**

The appearance change of normal coil-coated products and Clean COLORBOND® ULTRA steel in environments where atmospheric dirt is known to cause dirt-staining problems has been monitored. The samples tested after one year of exposure were not cleaned of dirt or other contaminants but had been exposed to rainfall during the test period. The benefits of using Clean COLORBOND® ULTRA steel in this type of environment are clearly evident as shown in TABLE 1 below.

## TABLE 1 – 12 MONTHS SAMPLE EXPOSURE COMPARISONS

| COLOUR SHADE | TYPICAL APPEARANCE CHANGE (ΔE UNITS CIELAB 2000) | |
|---|---|---|
| | NORMAL COIL-COATED PRODUCTS | CLEAN COLORBOND® ULTRA STEEL |
| Light (e.g. Enduring White) | 10 – 20 | ≤ 5 |
| Intermediate (e.g. Forever Beige) | 5 - 10 | ≤ 3 |

## EXPECTED PRODUCT SERVICE PERFORMANCE

The appearance of Clean COLORBOND® ULTRA steel and other coil-coated products can change over time on exterior weathering not only due to pick-up of dirt but also to changes in the paint system itself such as gloss loss, chalking and fading of pigmentation. Colour change, which is largely due to the changes in pigmentation will depend on the colour chosen. It is measured using a spectrophotometer, according to ASTM D-2244 on surfaces thoroughly cleaned of dirt, chalk, oxidised film and foreign contaminants. The typical appearance change of standard Clean COLORBOND® ULTRA steel colours in normal environments after 10 years of service are given in TABLE 2.

## TABLE 2 – EXPECTED COLOUR CHANGE AFTER 10 YEARS IN NATURAL WELL-WASHED EXPOSURE (AS/NZS 1580.457.1 & ASTM D-2244)

| COLOUR SHADE | TYPICAL APPEARANCE CHANGE (ΔE UNITS CIELAB 2000) |
|---|---|
| Light (e.g. Enduring White) | ≤ 4 |
| Intermediate (e.g. Forever Beige) | ≤ 6 |
| Dark (e.g. Eternal Red) | ≤ 10 |

**Notes**
Refer Note 9 & 10

## ATTRIBUTES TESTED DURING MANUFACTURE

| PROPERTY | TEST & EVALUATION METHOD (S) | RESULTS |
|---|---|---|
| **Specular Gloss** | | |
| 60°meter | AS/NZS1580.602.2; ASTM D523 | Nominal 25 ± 10 units |
| **Resistance to Abrasion** | | |
| Scratch | AS2331.4.7 | Typically 2000g |
| **Hardness** | | |
| Pencil | AS1580.405.1 | HB or harder |

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| PROPERTY | TEST & EVALUATION METHOD (S) | RESULTS |
|---|---|---|
| **Adhesion** | | |
| Reverse Impact | AS/NZS2728 (Appendix E) | ≥ 10 joules |
| T-bend | AS/NZS2728 (Appendix F) | Maximum 6T. Refer Note 7 |
| Natural well washed exposure (15 years) | AS/NZS 1580.457.1 | No flaking or peeling. Refer Notes 9 & 10 |
| **Flexibility** | | |
| T-bend | ASTM D4145 | Maximum 10T (no cracking). Refer Note 7 |
| **Resistance to Humidity** | | |
| Cleveland (500 hours) | ASTM D4545; AS/NZS 1580.481.1.9 (Blisters); AS 1580.408.4 (Adhesion) | Blister density: ≤3. Blister size: ≤S2. No loss of adhesion or corrosion |
| **Resistance to Corrosion** | | |
| Salt spray (1000 hours) | AS/NZS2728 (Appendix I), ASTM B117, AS2331.3.1, AS/NZS 1580.481.1.9 (Blisters), AS1580.408.4 (Adhesion) | Blister density: ≤2. Blister size: ≤S3. Undercut from score: ≤2mm. No loss of adhesion or corrosion. Refer Note 2 |
| **Resistance to Colour Change** | | |
| QUV (2000 hours) | ASTM G154 & ASTM D2244 (Colour) | ΔE CIELAB 2000: Intermediate colour: ≤ 5 units |
| **Resistance to Chalking** | | |
| Natural well washed exposure (10 years) | AS/NZS 1580.457.1 & AS/NZS 1580.481.1.11 (Chalk Method B) | Chalk Rating: ≤4. Refer Notes 9 & 10 |
| QUV (2000 hours) | ASTM G154 & AS/NZS 1580.481.1.11 (Chalk Method B) | Chalk Rating: ≤4 |
| **Resistance to Solvents** | | |
| Exposure | ASTM D1308 (3.1.1) & ASTM D2244 (Colour); AS/NZS 1580.481.1.9 (Blisters) | No discoloration or blistering. Refer Notes 9 & 11 |
| **Resistance to Acids** | | |
| Exposure | ASTM D1308 (3.1.1) & ASTM D2244 (Colour); AS/NZS 1580.481.1.9 (Blisters) | No discoloration or blistering. Refer Notes 9 & 11 |
| **Resistance to Alkalis** | | |
| Exposure | ASTM D1308 (3.1.1) & ASTM D2244 (Colour); AS/NZS 1580.481.1.9 (Blisters) | No discoloration or blistering. Refer Notes 9 & 11 |
| **Resistance to Fire** | | |
| Exposure | AS/NZS 1530.3 | Ignibility Index: 0 rating in scale of 0-20;<br>Spread of Flame Index: 0 rating in scale of 0-10;<br>Heat Evolved Index: 0 rating in scale of 0-10;<br>Smoke Evolved Index: 0-1 rating in scale of 0-10 |
| **Resistance to Heat** | | |
| Exposure 100°C continuous (500 hours) | ASTM D2244 (Colour) | Colour change ΔE CIELAB 2000: ≤3 units |

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## IMPORTANT NOTES

1. All warranties for a product, if any, are subject to eligibility. Terms and conditions apply. Nothing in this document is intended by BlueScope to extend, modify or otherwise affect any stated product warranty. To find out more, please contact your nearest BlueScope sales office.
2. If it is intended to use Clean COLORBOND® ULTRA steel in an exterior application within 1km of salt marine locations, severe industrial or abnormally corrosive environments; in areas not washed by rain, or in applications where it will be wholly or partly buried in the ground, please contact your nearest BlueScope sales office for specialized advice. For selection of the most appropriate Clean COLORBOND® ULTRA steel product, please refer to Technical Bulletins TB1a, TB1b, CTB16, CTB21, CTB22.
3. Customers should use product promptly (within 6 months) to avoid the possibility of storage related corrosion.
4. Finish Coat – the coating applied to the exposed surface of the prepainted coil which is expected to meet the Performance Requirements.
5. The product is supplied with a nominal 25 unit (60°) gloss Finish Coat.
6. Backing Coat – a thin coating applied to the reverse surface of the prepainted coil. It also gives additional durability to the reverse surface during the service life of the product, but for aesthetic reasons is not recommended for exposure to sunlight. Performance Requirements are generally not applicable to backing coats. Where specific Performance Requirements are deemed necessary for the reverse surface coating, a “double sided” product should be specified, in which case a topcoat of full nominal thickness will be applied.
7. The minimum internal bend diameters for forming processes to achieve no paint cracking (visible using x 10 magnification) and to avoid paint adhesion issues are specified by the T-bend flexibility and T-bend adhesion results respectively – where 1T equals the Total Coated Thickness (TCT) in mm of the material. These results are based on testing at 20-25°C.
8. For most products, the metallurgical ageing process which is inherent in the paint stoving cycle will result in some loss of ductility compared with unpainted product. However, minimum strength levels designated by relevant standards will still be applicable.
9. Improper storage or use of non-approved roll-forming lubricants may cause brand transfer and paint blushing, and may adversely affect colour and long term durability. Product in coil or sheet pack form must be kept dry. If the coil or sheet pack becomes wet, it must be separated and dried (refer AS/NZS2728 Appendix L, and also Technical Bulletin TB7). Contact nearest BlueScope sales office on appropriate rollforming lubricants.
10. Values quoted are for panels exposed in accordance with AS/NZS2728. Variations for in-situ performance may occur due complexity of building design and location.
11. Clean COLORBOND® ULTRA steel has good resistance to accidental spillage of solvents such as methylated spirits, white sprit, mineral turpentine, toluene, and trichloroethylene and dilute mineral acids and alkalis. However, all spillages should be immediately removed by water washing and drying.

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