

# COLORBOND® Ultra Steel

## General Description

COLORBOND® Ultra pre-painted steel, specifically designed by Tata Steel Colors combines long term durability and excellent corrosion resistance.

## Typical Uses

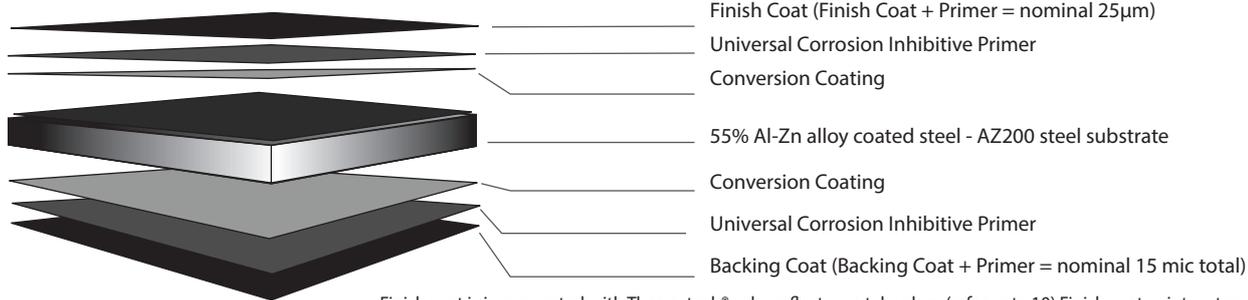
Exterior building profiles in applications requiring excellent corrosion resistance and long term durability. Suited to moderately severe marine and industrial environments.

## Indian and International Standards

Substrate - AS 1397/ IS 15961  
 Paint coating - AS/NZS2728 Type 4 / IS 15965 Class 4  
 ISO9001 : 2015 Quality System Certified

## Preferred Substrates

AZ200 G550 / 550 class 1 / YS550  
 AZ200 G350 / 340 class 2 / YS350  
 AZ200 G300 / 300 / YS300



Finish coat is incorporated with Thermatech® solar reflectance technology (refer note 10) Finish coat paint system uses of inorganic and lead free pigments and advanced Ultra Durable Polyester (UDP) Resins for highest exterior durability. Paint DFT - Triple spot minimum coat thickness - 80% of nominal value.

## Properties of Steel Base (other steel base possible on agreement)

| Chemical Element | Guaranteed Maximum (%) |                |               |                |
|------------------|------------------------|----------------|---------------|----------------|
|                  | G550* / 550** / YS550# | G300* / YS300# | 340 Class 2** | G350* / YS350# |
| Carbon (C)       | 0.35                   | 0.35           | 0.25          | 0.35           |
| Manganese (Mn)   | 4.0                    | 4.0            | 1.35          | 4.0            |
| Phosphorus (P)   | 0.05                   | 0.05           | 0.20          | 0.05           |
| Sulphur (S)      | 0.035                  | 0.035          | 0.04          | 0.035          |

Note: \*AS 1397, \*\*ASTM A792M, #IS 15961

| Mechanical Property                   | Guaranteed Minimum     |                |               |                |
|---------------------------------------|------------------------|----------------|---------------|----------------|
|                                       | G550* / 550** / YS550# | G300* / YS300# | 340 Class 2** | G350* / YS350# |
| Yield Strength, MPa                   | 550                    | 300            | 340           | 350            |
| Tensile Strength, MPa                 | 550                    | 340            | -             | 420            |
| Elongation on 80 mm GL (≥ 0.60 mm), % | 2                      | 18             | 12            | 14             |
| Transverse Bend Test (180° Bend)      | 2t                     | t              | -             | t              |

\*\*ASTM A792M (i) GL of 50mm, (ii) grade 550 in class 1, (iii) grade 340 in class 2  
 Note: Mechanical properties are guaranteed at ambient/room temperature | Tensile test in longitudinal direction. Where t = the diameter of mandrel in terms of thickness of product

## Dimension Range & Tolerances

| Range       | Base Metal Thickness (mm) |              |
|-------------|---------------------------|--------------|
|             | Tolerance                 |              |
|             | Width ≤ 1200              | Width > 1200 |
| 0.30 - 0.50 | ± 0.03                    | ± 0.04       |
| 0.51 - 0.80 | ± 0.04                    | ± 0.05       |
| 0.81 - 1.20 | ± 0.05                    | ± 0.06       |
| 1.21 - 1.30 | ± 0.06                    | ± 0.07       |

| Range                | Width (mm) |  |
|----------------------|------------|--|
|                      | Tolerance  |  |
| < 900 (in slit edge) | +1 / - 0   |  |
| 914 - 1000           | + 4 / - 0  |  |
| 1001 - 1250          | + 5 / - 0  |  |

\*\*For requirements beyond the standard product range & tolerance, please contact Tata Steel Colors Office

## Attributes Tested During Manufacture

| Property       | Test           | Evaluation Method(s)                                    | Results             |
|----------------|----------------|---|---------------------|
| Adhesion       | Reverse Impact | AS/NZS 2728 (App.E) / IS 15965 (Annex B)                | ≥ 10 Joule          |
|                | T-Bend         | AS/NZS 2728 (App.F) / IS 15965 (Annex B)                | Maximum 5T          |
| Specular Gloss | 60 meter       | AS/NZS 1580.602.2 / ASTM D 523 / IS 101 (Part 4/ Sce 4) | Nominal +/-10 unit. |

## Product Attributes

| Property                               | Test                                    | Evaluation Method (s)  | Results   |       |        |
|--|---|--|---|-------|--------|
| Flexibility                            | T - Bend                                | ASTM D 4145  | Maximum 10T (no cracking). Refer Note 5.  |       |        |
| Resistance to abrasion                 | Scratch                                 | AS 2331.4.7  | Typically 2000 g  |       |        |
| Hardness                               | Pencil                                  | AS/NZS 1580.405.1 / IS 15965   | HB or Harder  |       |        |
| Adhesion                               | Natural well washed exposure (10 years) | AS/NZS 1580.457.1<br>AS/NZS 1580.481.1.10:1998 (R2013)   | No flaking or peeling. Refer Note 9.  |       |        |
| Resistance to humidity<br>IS15965.2012 | 1000 hours                              | ASTM D 2247<br>ASTM D 4585<br>AS/NZS 1580.481.1.9<br>AS/NZS 1580.408.4<br>IS 15965 (Annex D)   | Blister density: ≤ 3<br>Blister size: ≤ S2<br>No loss of adhesion or corrosion of base metal                    |       |        |
| Resistance to corrosion                | Salt Spray (2000 hours)                 | ASTM B117<br>AS 2331.3.1<br>ASTM D1654<br>AS/NZS 2728 (App. I)<br>AS/NZS 1580.481.1.9 (Blisters)<br>AS/NZS 1580.408.4 (Adhesion)<br>IS 15965 (Annex D) | Blister density: ≤ 2<br>Blister size: ≤ S3<br>Undercut from a score: ≤ 2 mm<br>No loss of adhesion or corrosion |       |        |
| Resistance to colour change            | QUV (2000 hours)                        | ASTM G 154 - 16<br>ASTM D 2244 - 21 (color)  | ΔE CIELAB 2000 - Intermediate Color: ≤ 5 units  |       |        |
|  | Natural well washed exposure (10 years) | ASTM D 2244 - 21 (color)<br>AS/NZS 1580.457.1  | ΔE CIELAB 2000 - Refer Note 9.<br>Light Color: ≤ 4 units<br>Int. Color: ≤ 6 units, Dark color: ≤ 10 units       |       |        |
| Resistance to chalking                 | QUV (2000 hours)                        | ASTM G 154 - 16<br>AS/NZS 1580.481.1.11 (Chalk Method B)   | Chalk Rating: ≤ 4   |       |        |
|  | Natural well washed exposure (10 years) | AS/NZS 1580.457.1<br>AS/NZS 1580.481.1.11 (Chalk Method B)   | Chalk Rating: ≤ 4. Refer Note 9.  |       |        |
| Resistance to acids                    | Exposure                                | ASTM D 1308 (3.1.1) - 20<br>AS/NZS 1580.481.1.9 (Blister)<br>ASTM D 2244 (Color)   | No discoloration or blistering.<br>Refer Note 6.  |       |        |
| Resistance to alkalis                  |   |  |   |       |        |
| Resistance to solvents                 |   |  |   |       |        |
| Resistance to heat                     | Exposure 100° C continuous (500 hours)  | ASTM D 2244 - 21 (color)   | Colour Change ΔE CIELAB 2000: ≤ 3 units   |       |        |
| Fire hazard property                   | Exposure                                | AS/NZS 1530.3  | Index   | Range | Rating |
|  |   |  | Ignitability  | 0-20  | 0      |
|  |   |  | Spread of flame   | 0-10  | 0      |
|  |   |  | Heat evolved  | 0-10  | 0      |
|  |   |  | Smoke developed   | 0-10  | 2      |

### Note:

- COLORBOND® Ultra Steel may not be suitable for use in abnormally corrosive environments; in areas not washed by rain, or in applications where it will be wholly or partly buried in the ground. Before purchase, check suitability by contacting Tata Steel Colors sales office.
- Results mentioned are for standard colours of COLORBOND® Ultra Steel under normal well washed conditions of exposure away from marine location.
- The product is supplied with a nominal 25 unit (600) gloss Top Coat.
- 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 it is not recommended for exposure to sunlight. Performance Requirements are generally not applicable to backing coats. The backer coat in specific color and with foam adhesion properties is possible on agreement.
- The minimum internal bend diameter for forming process to achieve no paint cracking (visibility using x10 magnification) and to avoid paint adhesion issues are specified by T-Bend flexibility and T-Bend adhesion results respectively - where 1T equals the Total Painted Thickness (TPT) in mm of the material. These results are based on testing at 20-25°Celsius.
- COLORBOND® Ultra Steel has good resistance to accidental spillage of solvents such as methylated spirits, white spirit, mineral turpentine, toluene, trichloroethylene, dilute mineral acids and alkalis. However, all spillages should be immediately removed by water washing and drying.
- 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 qualified.
- Improper storage or the use of un-approved roll-forming lubricants may adversely affect colour. Material which becomes wet while in stacks or bundles must be separated and dried (refer AS/ NZS 2728 Appendix L).
- Values quoted are for panels exposed in accordance with AS/NZS 2728. Variations for in-situ performance may occur due to complexity of building design and location.
- COLORBOND® Ultra Steel colours are incorporated with Thermatech® solar reflectance technology. Thermatech® technology lowers surface temperature by absorbing lesser heat from the sun, thereby reducing the heat radiation travelling downwards into the building and thus keeping both the roof and building cooler.

### Note:

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