

Perspectra Plus Series™ is the preferred prepainted material for cladding and roofing applications in North America where long lasting paint performances are required. Perspectra Plus Series™ is the newest generation of paint in our Perspectra brand paint system. An enhanced state of the art silicone modified polyester (SMP) paint system makes Perspectra Plus Series™ ideal for commercial and residential metal roofing, agricultural and industrial metal building components, pre-engineered metal building systems as well as rainware products.

1.0 Scope

- 1.1 The following specification shall apply to hot dipped metallic coated sheet steel prefinished with colours of proven durability and suitable for exterior exposure as delivered from the coil coater¹.

Perspectra Plus Series™ is a paint system using a silicone modified polyester (SMP) topcoat. It is designed for sidewall (vertical) applications and roofing (non-vertical) applications for the construction and manufacturing industry. Applications are limited to normal environments. It is not recommended for aggressive atmospheric exposures.

2.0 Base Metal

The base metal furnished before painting shall conform to one of the following specifications:

- (a) Zinc coated (galvanized) sheet steel conforming to the requirements of ASTM A653 or A653M as applicable.
- (b) 55% aluminum-zinc (Galvalume™) alloy coated steel sheet conforming to the requirements of ASTM A792 or A792M as applicable.

3.0 Chemical Pretreatment

- 3.1 Microcrystalline zinc phosphate chemical pretreatment shall be applied to the hot dip galvanized base metal prior to primer application.
- 3.2 Metal oxide conversion coating shall be applied to the 55% aluminum-zinc (Galvalume™) base metal prior to primer application.

4.0 Paint Qualification Tests

4.1 Film Thickness

The exposed surface shall have a dry film thickness of $25\mu\text{m} \pm 3\mu\text{m}$ (1.0 ± 0.1 mils). The unexposed or reverse side shall have a dry film thickness which will vary in accordance with the customer's requirements.

Test Method: ASTM D5796

4.2 Film Cure

The baked film shall withstand one hundred and fifty (150) MEK double rubs.

Test Method: ASTM D5402

4.3 Film Hardness (Pencil Method)

The hardness of the paint film may be measured by means of Eagle/Berol turquoise T-2375 or equivalent pencils using a flat cylindrical head applied at a 45° angle to the paint film. A minimum hardness of F shall be obtained. Pencil Hardness is specified as the hardest pencil number that will not rupture the paint film when tested as described above.

Test Method: ASTM D3363

4.4 Formability/Adhesion Test

When testing a representative sample at $20^\circ\text{C} \pm 1^\circ\text{C}$ and using #610 Scotch cellophane tape, the paint system will show no loss of adhesion when subjected to a 3T 180° bend and tape pull test. Test Method: ASTM D4145.

Please note that this requirement does not apply to material ordered to ASTM A653M/A792M Grade 550 or ASTM A653/A792 Grade 80.

Note (1): To review the list of non-standard colours and their limited performance specification, please go to:
<https://dofasco.arcelormittal.com/what-we-do/markets/construction/publications.aspx>, section Pre-painted (organic coated) steels

4.5 Gloss

The specular gloss shall be 30 ± 5 gloss units when measured with a Gardner 60° Glossmeter. When other than the standard gloss is ordered, the gloss range shall be mutually agreed upon prior to purchase.

Test Method: ASTM D523

4.6 Humidity Resistance

The humidity resistance test shall be conducted at 100% relative humidity at a temperature of 38°C (100°F). After 1000 hours of exposure, the surface shall show no field blisters.

Test Method: ASTM D2247

5.0 Exterior Exposure (Weathering)

Each proven colour of Perspectra Plus Series™ will meet the following weathering standards for applications within Canada and the Continental United States (in the absence of aggressive fumes and/or other chemicals not normally encountered in the atmosphere). Weathering standards also exclude installations within 1,500ft or less from a salt water environment².

5.1 Film Integrity

During the first forty (40) years of exposure, the paint film shall have no evidence of cracking, flaking, or checking to an extent that is apparent on ordinary outdoor visual observations.

5.2 Chalking

For the first thirty (30) years, vertical installations will not chalk more than a #8 rating and non-vertical installations will not chalk more than #6 when measured per ASTM D4214, Method A.

5.3 Colour Change

For the first thirty (30) years, vertical installations will not change colour more than five (5) and non-vertical installations will not change more than seven (7) delta E colour units. Colour measurements are to be made per ASTM D2244 and only on clean surfaces after removing surface deposits and chalk per ASTM D3964. Colour change shall be measured on any accepted colourimeter designed to produce reflectance readings in the Tristimulus Filter System of X, Y and Z based on the CIE values of illuminant C at 2° and measured in Hunter L, a, and b units.

6.0 Colour Match

It is commercially impossible for each lot of prefinished steel to be an identical colour match. Colour match problems can be minimized if the following procedures are followed:

6.1 Orders for large projects which could involve more than one production order should be discussed with your supplier.

6.2 Attempt to ensure that each building is clad with material from the same production lot. When a different production lot must be used for one elevation, such as could be involved in an addition, attempt to minimize colour variation by inserting an elevation change or break in the building structure.

6.3 Do not combine or mix Perspectra Plus Series™ with different paint systems on the same building even though their production colours match. The two paint systems will weather at different rates and a significant colour difference will be noticeable between the paint systems over time.

Note (2): To learn more about Paint Performance Specification Conditions and Restrictions related to the Perspectra Plus Series™, please go to: <https://dofasco.arcelormittal.com/what-we-do/markets/construction/publications.aspx>, section Perepainted (organic coated) Steels

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