



55% Aluminum-Zinc Alloy Coated Steel

TECHNICAL BULLETIN #9

Guidelines to the Effective Use of a Resin-Coated Product

9.0 Properties of 55% Aluminum-Zinc Alloy Coated Steel with a Resin Coating.

Standard 55% Aluminum-Zinc Alloy Coated Steel with a resin coating is a specially formulated water-based resin film, which is factory applied over the 55% Aluminum-Zinc Alloy Coated Steel surface. In the cured state the coating is colorless, odorless and imparts a satin finish to the surface of the product.

The resin film has excellent adhesion to the substrate with very good impact resistance and flexibility. When it is used without post painting, the natural weathering process will gradually erode the clear coating from the surface over a period of 12-18 months, without powdering, peeling or cracking. No significant changes in surface appearance will be evident.

In addition to the standard 55% Aluminum-Zinc Alloy Coated Steel resin coating, we also offer a resin film designed specifically for end-use applications that involve adhesives such as plywood sandwich panels and foam insulation. Cascadia Metals Sales Representatives can help to determine which resin film is right for any specific end-use application.

9.0.1 Factory Production of 55% Aluminum-Zinc Alloy Coated Steel with a resin coating.

The clear resin film is applied wet, using state-of-the-art roll coaters installed between the chromate application station and the delivery section. The roll coaters are similar in design and operation to those used on a coil coating line. The film is cured using computer controlled ovens. This ensures that optimum coating properties are achieved prior to rewinding and shipping.

9.1 Field Painting Guidelines.

9.1.1 Wet Painting.

Both 55% Aluminum-Zinc Alloy Coated Steel bare and with a resin coating are readily over painted provided paint manufacturer's recommendations are followed and appropriate consideration is given to environmental conditions, end use, location and product application. Traditionally 55% Aluminum-Zinc Alloy Coated Steel requires the surface to be painted also be washed with a suitable solvent to remove traces of residual roll forming lubricant, and suitable metal primer be applied before the application of a decorative topcoat.

55% Aluminum-Zinc Alloy Coated Steel with a resin coating removes the requirement to use solvent to clean up surfaces. A simple detergent wash is satisfactory, and eliminates the need to prime the surface. 55% Aluminum-Zinc Alloy Coated Steel with a resin coating can be readily over-painted with a high quality water based acrylic topcoat without priming, provided a lubricant has not been used in the forming process and the surface is clean and dry.

Solvent based finish coat systems may be used, however, these must be applied after the material has been primed with a water based, solvent resistant primer. If the material is correctly primed a number of coats may be applied. Surface preparation and priming must be in accordance with the paint manufacturer's instructions.

9.1.2 Powder Coating.

55% Aluminum-Zinc Alloy Coated Steel with a resin coating is suitable for direct powder coating, provided the surface to be coated is clean and powders requiring a peak metal temperature in excess of 390°F are not used. It is recommended a brief water wash serve as the only pretreatment step, rather than another form of solvent-based cleaning solution.

9.2 Roll forming Characteristics.

Lubricants are rarely required during the roll forming of 55% Aluminum-Zinc Alloy Coated Steel with a resin coating because the clear resin film acts as a solid lubricant. The need for additional lubricant must be determined, however, on a case by case basis. Variables should be considered include roll former design, (number of stands and severity of each incremental shape change) speed, surface condition of rolls and general machine maintenance.

Most common roof and sidewall trapezoidal shapes do not require additional lubrication if the roll former is well maintained and correctly set up. Very severe profiles may require a small amount of spot lubricant at the heaviest worked points.

The Benefits of Using 55% Aluminum-Zinc Alloy Coated Steel with a resin coating Include:

- a. No Pickup - The reduction or absence of pickup during forming due to the resin film means the reduction or elimination of time-consuming cleanup.
- b. Increased Tool Life - Reduced pickup combined with the lubricating benefits of the resin film will contribute to improved tool life in manufacturing and roll forming applications.
- c. Scheduling Flexibility - 55% Aluminum-Zinc Alloy Coated Steel with a resin coating can typically be roll formed interchangeably with pre-painted feed avoiding the need for intermediate roll cleaning. This provides greater scheduling flexibility.
- d. Removal of Hazardous Work Place Chemicals - Hazardous substances such as kerosene and other lubricants can be removed from the work environment improving occupational health and safety practices.
- e. Less Slippery - The resin film is less slippery than a lubricated steel surface particularly with the absence of residual lubricant left over from roll forming. This will make the product safer to walk on while installing, particularly in wet conditions.
- f. Improved Final Appearance - Residual lubricants can often create a patchy visual appearance as the result of uneven drying off of the lubricant. This problem can usually be avoided with 55% Aluminum-Zinc Alloy Coated Steel with a resin coating.

9.3 Resistance to Marking.

55% Aluminum-Zinc Alloy Coated Steel with a resin coating resists marking and stains occurring during manufacturing, handling or fixing. The coating acts as a surface sealant, protecting the metal surface from hand and boot marking.

9.4 Wet Stack Storage Stain Resistance.

The resin coating has an increased resistance to wet stack storage stain. Such stains appear black, and are caused when the material is packaged and subjected to moisture ingress between production and final use. The coating acts as a barrier coat, preventing any chemical action from occurring.

9.5 Installation of 55% Aluminum-Zinc Alloy Coated Steel with a resin coating.

9.5.1 Flashings.

The recommendations for flashing 55% Aluminum-Zinc Alloy Coated Steel with a resin coating are the same as for 55% Aluminum-Zinc Alloy Coated Steel. Copper and lead are incompatible with 55% Aluminum-Zinc Alloy Coated Steel and neither of these metals should be used in contact with 55% Aluminum-Zinc Alloy Coated Steel with a resin coating. Refer to “55% Aluminum-Zinc Alloy Coated Technical Bulletin #2 – Guide to Flashing Materials”.

9.5.2 Sealants.

Tests show common neutral cure silicon sealants will adhere to the resin film. The adhesion properties of the resin film are the same as 55% Aluminum-Zinc Alloy Coated Steel. Refer to “55% Aluminum-Zinc Alloy Coated Technical Bulletin #5 - Sealants Guide”.

9.5.3 Fasteners.

Recommended fasteners for 55% Aluminum-Zinc Alloy Coated Steel with a resin coating are the same as for 55% Aluminum-Zinc Alloy Coated Steel. Refer to “55% Aluminum-Zinc Alloy Coated Technical Bulletin #3 - Fastener Selection for Roofing and Siding Applications”.

9.6 Slitting 55% Aluminum-Zinc Alloy Coated Steel with a Resin Coating.

Where friction drag pads are used to maintain processing tension during slitting/recoiling, pickup of the passivant can occur. Some chromate is present in this pickup, as it is with most 55% Aluminum-Zinc Alloy Coated Steel, therefore, the following guidelines are recommended:

- Use minimal frictional forces on pads.
- Set minimum pad width 6” to minimize frictional forces if drag pads are used.
- Encourage use of an appropriate respiratory device for personnel working in close proximity (4-6 Feet) if dust is produced by the drag pad.
- Remove pickup from drag device and adjacent areas using appropriately designed apparatus.
- Dispose of drag pads in accordance with environmental or local regulations.

9.7 Welding.

Spot, seam or gas metal arc welding can be carried out successfully on 55% Aluminum-Zinc Alloy Coated Steel with a resin coating. Fume generation may be slightly higher than 55% Aluminum-Zinc Alloy Coated Steel without the coating. All welding should be carried out in well ventilated areas.

9.8 High Temperatures.

The maximum recommended continuous service temperature is 390°F. Service temperatures exceeding 390°F will be detrimental to the coating. Applications requiring operating temperatures up to the 600°F safe limit for 55% Aluminum-Zinc Alloy Coated Steel should be specified without the resin film.

9.9 General Corrosion Characteristics.

The 55% Aluminum-Zinc Alloy Coated Steel with a resin coating does not improve the general corrosion characteristics of 55% Aluminum-Zinc Alloy Coated Steel. As discussed in Section 9.0 the coating degrades when exposed to ultra violet light. The resin film will not negatively impact the superior corrosion performance of 55% Aluminum-Zinc Alloy Coated Steel.



9.10 Product Mixing.

Galvalume Steel, bare and/or with a resin coating, should not be mixed in adjacent areas on the same building. The different surface finishes, both in the new and weathered conditions, will result in a contrasting appearance which may be objectionable.

9.11 Visual Reflectivity.

55% Aluminum-Zinc Alloy Coated Steel with a resin coating is no more reflective than 55% Aluminum-Zinc Alloy Coated Steel.

9.12 Electrical Conductivity.

The resin film applied to 55% Aluminum-Zinc Alloy Coated Steel with a resin coating can potentially cause an insulating effect between panels in electrical appliance applications. The insulating effect would normally be overcome with welding or mechanical fastening of components. Manufacturers should be advised to ensure products are adequately grounded.

Any technical information or advice in this bulletin is provided without charge as a service to the industry. The use of this information or advice may produce unexpected results, and any persons intending to make use of this information are urged to carry out tests of their own to satisfy themselves they are using the correct materials, approach and techniques. Correctly following the information and advice should produce a satisfactory result but Cascadia Metals assumes no responsibility whatsoever in relation to such information or advice. Please ensure you have the most current Technical Bulletin.

