

## How to Prepare Hot Dip Galvanized Coatings For Painting.

### WHY GALVANIZE?

Hot dip galvanized coatings are applied to steel to improve the anti-corrosion performance of the steel to ensure that it lasts as long as possible with a minimum of maintenance

### COATINGS DIFFER

Only hot-dip galvanizing gives a coating that can reach the 50 year life required of structural building products.

### GALVANIZED STEEL CAN BE PAINTED

Paint provides colour and galvanizing provides a superior base for its application. Paint over hot-dip galvanizing extends the life of both coatings.

### HOT-DIP GALVANIZED PRODUCTS LAST LONGER...



**Brush, sweep or 'whip' blasting** provides an excellent basis for painting over galvanized coatings.

There are many instances where hot dip galvanized coatings need to be painted. Industrial Galvanizers has been directly involved in the painting and powder coating of a large number of hot dip galvanized structures and items. There are well established quality assurance procedures for the painting of hot dip galvanized components in a controlled environment, but it is a common requirement to apply paint coatings to hot-dip galvanizing under separate contract arrangements or on site.

When a steel item is first hot dip galvanized, its surface is free from oxidation and contamination and is in the best condition for coating. It is also highly susceptible to oxidation, particularly reaction with atmospheric moisture.

Most galvanizers quench the work in a weak sodium dichromate solution to passivate the surface. This chromate passivation film weathers away with time and is replaced by a stable zinc carbonate complex film. This dynamic set of surface conditions needs to be considered when painting galvanized steel.

In addition, surface contamination can occur that will interfere with paint adhesion. Diesel fumes are a common source of surface contamination that are very difficult to detect, as the galvanized coating may still appear clean and bright.

Where close control of surface condition is not possible, the best alternative to ensure a high quality paint application is to brush or sweep blast the galvanized surface immediately prior to painting.

This is a poorly understood technique with many paint contractors. Incorrect technique will cause serious damage to the hot dip galvanized coating.

The following specification is recommended for abrasive blasting of hot dip galvanized surfaces prior to painting.

Compliance with this specification will ensure that not more than 10 microns of zinc will be removed from the galvanized coating during the blasting process, and that the coating will not be damaged by fracturing of the alloy layers through excessive impact energy of the blast media on the galvanized coating.

### SURFACE PREPARATION IS THE KEY

Proper surface preparation is the key to good paint application—whether on bare steel or galvanized.

### WHY GALVANIZE WITH INDUSTRIAL GALVANIZERS?

For steel users requiring fast, proven corrosion protection for local or national projects Industrial Galvanizers is the established hot dip galvanizer with nationwide coverage.

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Brush or Sweep Blasting Procedures for Preparing Hot Dip Galvanizing for Painting

- Blast nozzle pressure 40 psi (280 kpa) maximum
- Abrasive grade 0.2 - 0.5 mm
- Abrasive type - clean ilmenite or garnet
- Distance of nozzle from surface 400 - 500mm
- Nozzle type - 10mm minimum diameter venturi type
- Blasting angle to surface - 45 degrees

The aim of this blasting procedure is to remove any oxide films and surface contaminants from the surface. It is NOT to produce a profile similar to that required on bare steel. The brush blasting of the relatively soft zinc will automatically produce a fine profile, giving the clean surface a satin appearance.

With inexperienced operators, a test section should be evaluated by measuring coating thickness before and after blasting with an approved magnetic thickness gauge.

A 5-10 micron reduction in galvanized coating thickness indicates an acceptable technique. Over 10 microns of coating removed indicates an unacceptable technique.

On reactive steel, the coating may already have a matte grey or satin appearance. This indicates the presence of the zinc-iron alloy layers at the surface, which also indicates a thicker than standard galvanized coating.

The micro-roughness of the alloy layers already provides a good mechanical key for appropriate paint, and only very light brush blasting is required on galvanized coatings of this type.

Grey galvanized coatings are more susceptible to mechanical damage than shiny coatings and should be treated accordingly.

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