

Sweep Blasting Hot Dip Galvanizing

March 2012

Abrasive sweep (brush) blast cleaning is a method used for the preparation of a galvanized coating prior to the application of an organic (paint) coating. The purpose of this procedure is to remove the oxide film from the zinc surface. Particularly where good wet adhesion or semi immersion of the combined system is intended, light sweep blasting can provide maximum topcoat adhesion over galvanizing.

To achieve a successful result it must be understood that the levels to which steel need to be blast cleaned prior to the application of an organic coating are totally inappropriate for galvanizing. The outer layer of pure zinc requires very little impact or scouring action to promote adequate surface roughness.

The blasting process should lightly roughen the surface without removing a significant amount of the galvanized coating and provide a key to promote adhesion of the paint film. The procedure should be carried out using the following criteria, featured in Appendix I of AS/NZS 4680:

- A fine, non-metallic abrasive (e.g. ilmenite or garnet)
- Abrasive size which will pass through a test sieve of nominal aperture size 150µm - 180µm (80 - 100 mesh)
- Blast pressure 275kPa (40psi)
- Angle of blasting to surface no greater than 45°
- Distance from surface 350-400mm
- Nozzle orifice diameter 10 - 13mm of venturi type

These controls will ensure that the severity of blasting does not damage the galvanized surface and should remove only 10µm of surface zinc.

If operators with good experience in sweep blasting are unavailable, it is wise to begin with a greater distance between the nozzle and the surface to be sweep blasted until standards for the work have been established.

Organic paint coatings should be applied as soon as possible after galvanizing or abrasive blasting.
