

Care and Maintenance of Hot Dip Galvanizing

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The following information offers some guidance on the general care and maintenance of hot dip galvanized steel products.

- ❖ Avoid long periods of exposure of your galvanized steel product to environments where the pH is below 6 and above 12. Outside the range of pH 6-12 the galvanized coating can suffer greater corrosion than normal.
- ❖ Avoid direct contact of your galvanized steel product with dissimilar metals, such as brass and copper, particularly in corrosive environments. Where dissimilar metals are to be used together ensure that there is an insulator between the dissimilar metal and the galvanized product.
- ❖ Do not constantly abrade clean your galvanized product and, where possible, avoid abrasive washing of your galvanized product altogether. One of the ways in which galvanizing protects steel from corrosion is by the development of a thin barrier film of insoluble zinc corrosion products (known as a patina) on the outer surface of the galvanized steel through exposure to the atmosphere. Abrasive cleaning will wash away this protective patina and the galvanized article will have to build up this barrier protection again, consuming more of the zinc. Constant abrasive cleaning will consume the zinc more quickly and therefore may reduce the life of your galvanized steel product.
- ❖ Galvanizing may be cleaned using a water-based emulsifier, alkaline-based cleaners with a pH of 12 or lower or organic solvents. Then rinse the area with fresh water and simply wipe clean with a soft cloth. Please consult the your galvanizer or the GAA if you have any concerns in regards to cleaning your product.
- ❖ For galvanizing products situated in a highly corrosive environment eg. coastal, heavy industrial, etc it is recommended the product be rinsed with potable water on a regular basis, particularly under sheltered conditions (i.e. not exposed to rain and sun).
- ❖ Avoid long term storage of any galvanized product in damp and poorly ventilated conditions. Ensure the storage location is dry and there is effective ventilation.
- ❖ If there is physical damage to the galvanized coating of the product (e.g. coating is chipped or fabrication after galvanizing has taken place), it is recommended that the damaged area be repaired in one of the following ways in accordance with AS/NZS 4680.

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8.2 Repair requirements

Surfaces that remain uncoated during the galvanizing process as outlined above and require repair, shall be repaired by the application of one of the following coatings:

- (a) Organic zinc rich epoxy paint complying with AS/NZS 3750.9. This is to be applied to the repair areas in two coats. Each coat shall have a minimum dry film thickness of 50 μm .
- (b) Inorganic zinc silicate paint complying to AS/NZS 3750.15. This shall have a minimum dry film thickness of 100 μm .

NOTE: For subsequent powder coating, these two coating repair systems should be capable of passing 1000 hour neutral salt spray performance when tested in accordance with AS 2331.3.1 and should be stable under powder coating curing conditions.

- (c) Zinc metal spray to ISO 2063 or AS/NZS 2312.
- (d) Zinc alloy solder stick.

All of the above treatments shall be applied as per manufacturers' requirements and shall include any necessary pre-treatment to ensure good adhesion to the substrate.

The coating thickness on the renovated area shall be a minimum of 30 μm more than the local coating thickness requirements in Tables 1 and 2 for the relevant hot dip galvanized coating unless the purchaser advises the galvanizer otherwise e.g., when the galvanized surface is to be over coated and the thickness for renovated areas is to be the same as for the hot dip galvanized coating.

The selected coating on the renovated areas shall be capable of giving sacrificial protection to the steel to which it is applied.

If a further coating has been specified by the purchaser for aesthetic or further protective purposes, the purchaser and applicator of such coatings shall assure themselves that they are compatible with the repair methods and materials used in the repair of uncoated areas.

8.3 Repair after site handling and installation

The same procedures and quality of repair products shall apply as for galvanizing process works.

Given the less specific facilities available on site, particular care is required with surface preparation and ensuring the most suitable method needed with the minimum 100 μm dry film thickness described.

8.4 Site repair

Galvanizing rectification described in Clause 8.2 as part of a plant process, shall also apply to site work for the repair of damage from steel handling impact, erection damage or site welding.

NOTES:

- 1 Optimum power tool cleaning to approach abrasive blasting preparation is a necessity to achieve the quality and film thickness required. The compromise not available in the case of thermal zinc spray work which should be blast cleaned.
- 2 Site facilities lack workshop application access, protection from weather or the close proximity to work surface for normal quality control. Consideration of the above factors in choosing the method, including sufficient time and priority to ensure preparation to achieve adequate coating thickness.

Close supervision shall be required to compensate for the absence on workshop controls.