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INDUSTRIAL
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Tech Tips

Care and Maintenance of Hot Dip Galvanizing

Hot Dip Galvanizing is renown for its durability and low maintenance - making it a coating of choice for asset owners, architects, engineers and fabricators.

A Hot Dip Galvanized (HDG) coating is well-known for its durability and low maintenance. In many applications, galvanized coatings receive no maintenance - yet still provide many years, or decades, of corrosion protection. However, the durability of ANY coating can be enhanced by a care and maintenance programme.

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 rebuild it, consuming more zinc. Constant abrasive cleaning will consume the zinc more quickly and may reduce the life of the galvanized 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.
- For galvanizing product situated in a highly corrosive environment (e.g. 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 accordance with AS/NZS 4680. (See Tech Tip 4 - How to Repair a Galvanized Coating).

WHY GALVANIZE?

Hot-dip galvanized coatings provide lasting corrosion protection to steel structures large and small, and require minimal maintenance.

COATINGS DIFFER

Only hot-dip galvanizing gives a complete coating—inside and out. Full immersion in molten zinc produces bonded, tough corrosion protection

HOT-DIP GALVANIZING — LONG-LASTING CORROSION PROTECTION FOR YOUR STEEL PROJECTS

INDUSTRIAL GALVANIZERS
A valmont COMPANY

Care and Maintenance of Hot Dip Galvanizing

MAINTENANCE

- Avoid prolonged exposure to environments with pH of <6 or >12, as this can reduce durability
- Insulate from contact with dissimilar metals
- Do not constantly abrade the surface patina
- Clean with a water-based emulsifier and rinse with fresh water
- HDG in a highly corrosive environment should be rinsed regularly with fresh water
- Avoid long-term storage in damp or poorly ventilated conditions
- Repair areas that show physical damage to the coating (e.g. through impact, or welding after coating)

Cleaning Galvanized Surfaces

There are a number of ways of treating different types of stains or marks. It is advised that any cleaning treatment of the galvanizing should be conservative at first; and then, if the situation demands, the treatment can become steadily more aggressive. It is also important that wherever some form of mechanical abrasion or "scrubbing" is required, a **hard plastic bristle brush** is recommended to be used. Steel bristle brushes are not to be used since they will cause discolouration.

It is important to note that mechanical methods of cleaning zinc surfaces can cause aesthetic issues. The "cleaned" areas are likely to contrast with adjacent untreated surfaces and may take a significant period of time to weather to a uniform colour. If aesthetics is a large concern, it is advisable to first test the cleaning method in an inconspicuous area in case the aesthetic effect is unappealing.

For general cleaning of bulk contaminants such as dirt and the like, ordinary laundry soaps can be satisfactorily used. For more stubborn or larger areas, the use of a low pressure wash (such as a gurney), with just pure water or in conjunction with proprietary cleaning materials such as car wash or truck wash, can be effective. The car and truck cleaners are made to minimise corrosion on the metallic parts of vehicles so are generally suitable for use on galvanized steel although it is important that the steel be washed down with fresh water after cleaning.

Many mild stains (such as those from water ponding and water runs or, in public areas, those from beverages such as beer, wine etc.) can be removed with the use of common household ammonia cleansers, again being sure to thoroughly rinse the galvanized article with fresh water afterwards.

Often, water draining from other adjacent steelwork that is rusting can flow on to galvanized steel and cause conspicuous brown staining. This can be treated with the use of commercial oxalic acid or a proprietary solution that has been developed for descaling pots and pans. Thorough rinsing with water is again important to remove any corrosive residues of the cleaner.

Sometimes during building or renovations, cement and mortar can be dropped onto the galvanized steel and this can be very difficult to remove once it has hardened. Firstly remove the large parts of the deposit as close to the surface as practicable, then oxalic acid can be used to remove the remaining remnants from the galvanized steel, followed with a thorough rinsing. Other acids are more effective on the mortar or cement, but these can be very aggressive on zinc and are not recommended.

Paints, such as graffiti, can be removed using thinners. If some form of scraping is required, use plastic or wooden scrapers (not steel/ metallic items). If the paint is wet or fresh, then normal thinners can be used. Once the paint has hardened, then a non-alkaline stripper can be used. Again, rinsing is important to remove residues that may cause discolouration later and/or encourage corrosion.

For further information, please contact your local Industrial Galvanizers branch on **1300 INGALV** *(1300 464 258).*

Industrial Galvanizers is a member of the Galvanizers Association of Australia (GAA), who can also be consulted for advice.

galvanizers ASSOCIATION OF AUSTRALIA

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