

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.

THICKNESS COUNTS

Compared to other zinc-rich coatings, hot-dipped galvanizing is:-

- THICKER
- HARDER
- FULLER

HOT-DIP GALVANIZED PRODUCTS LAST LONGER...

Galvanizing and chemicals: What is OK and what to avoid?



Galvanized tank. Will perform well in contact with petroleum products and solvents.

The majority of galvanized steel products are used in atmospheric environments and the galvanized coating's performance has been well established for such applications.

There are many instances where galvanized steel is in contact with other common materials and chemicals. Some of these materials may be very aggressive on zinc coatings.

Galvanized coatings perform well in contact with most petroleum products – petrol, diesel and oils, and organic solvents such as methanol, turpentine, mentholated spirit, alcohols, etc. The only durability problems with these types of products arise because of water in the fuel being precipitated to the bottom of the container and giving rise to localised corrosion, often caused by microbiological corrosion.

Dry bulk products such as grains can be stored in galvanized facilities. Some food products, particularly fruit, can cause problems with galvanized coatings because of the acidity of their juice, should it come in contact with the galvanized steel.

Most fertilizers will aggressively attack zinc coatings and can quickly remove a galvanized coating if damp fertilizers are left in contact with galvanized surfaces. Exceptions are products high in agricultural lime; these are relatively benign to both zinc and steel.

Building materials can react rapidly with zinc when wet. Gypsum plaster is an example, where initial corrosion rates can be quite high, but are negligible once the plaster has dried. Cement behaves in a similar manner - a reaction with the zinc being possible during initial contact, with virtually no corrosion occurring after concrete cure is complete.

Some timber products can be aggressive to zinc also. Some wood species have sap that had pH less than 4 and exposure to unseasoned wood products can cause rapid attack on the zinc coating. However, with most timber, including CCA treated timber, rapid decreases in corrosivity occur once the moisture content of the wood drops below 20%.

Galvanizing and chemicals: What is OK and what to avoid?

TRIED & PROVEN

Over 40 years of field testing shows that galvanized coatings perform well even in harsh environments.

GALVANIZING AND CHEMICALS

There are many instances where galvanized steel is in contact with other common materials and chemicals. Galvanized coatings perform well in contact with most petroleum products and organic solvents. Some other materials - including wet gypsum, cement and graphite - may be very aggressive with zinc coatings.

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.

Most detergents and cleaning chemicals that are phosphate-based are not good for galvanized containers, nor are other trisilicate-based detergents.

Very soft water can be extremely aggressive to zinc-based coatings. This was a problem in the days of galvanized rainwater tanks (all steel water tanks are now made of polymer coated steel over a galvanized or zinc-aluminium base). If new tanks were rapidly filled with storm rainwater, it was found that they suffered premature failure, typically within 2 years or so. Tanks that filled slowly had a normal life expectancy of 20 years. The dissolved salts in the slow-filling tanks provided the carbonates and other compounds to allow the zinc patina to be established, while the rapidly filled tanks, containing only pure water, did not.

Another material that is aggressive to zinc coatings and often overlooked, is graphite. Graphite is one of the many forms of carbon. In this form it is the most cathodic material on the electrochemical series of metals, and is one of the few non-metals that is a good conductor of electricity.

Soot from oil or wood fires, and lubricants or rubbers containing graphite that are in contact with zinc or aluminium coatings or materials can cause rapid attack on these metals on the presence of moisture.

Graphite is at the far end of the electrochemical series of metals and generates very high corrosion currents when in contact with metals, like zinc, at the other end of the scale.

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