NUMBER
02
MARCH
2013

INDUSTRIAL
GALVANIZERS
CORPORATION

Tech Tips

Galvanizing and Coal - 45 Years' Experience.

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...

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

The use of hot dip galvanized coatings in contact with coal has been questioned by some involved in the specification of protective coatings for the coal industry. Industrial Galvanizers has been galvanizing steelwork of all kinds for the coal industry for nearly 30 years.

The Hunter Valley is the centre of power generation for NSW and the use of galvanized coatings for conveyor steelwork in the power industry from the 1960's laid the foundation for the acceptance of hot dip galvanized coatings for the export coal industry.

Industrial Galvanizers involvement with the coal industry has expanded to the central Queensland coal fields and the Victoria brown coal operations as the company has expanded structural galvanizing services into these areas.

The performance of the hot dip galvanized coatings in a wide range of coal industry applications has been monitored since the 1970's. This has provided a valuable insight into galvanized steel's performance and allows reliable predictions to be made on galvanized coating life.

There are three factors that impact on galvanized coating life in coal mining and processing operations. These are:

1. The nature of the coal, particularly sulfur levels and the form that the sulfur takes in the run of mine product and the processed (washed) coal.
2. The nature of the process water - salinity, pH, hardness.
3. The local environments in which the galvanizing operates - housekeeping standards, time of wetness.

The corrosion rate of hot dip galvanized coatings will be influenced by these factors individually and in combination.

Hot dip galvanized steel used on conveyor systems and associated above-ground coal handling equipment has given very good performance. Conveyor systems such as the No. 4 Liddell Power Station overland conveyor, installed in 1968, still retains approximately 20% of the original galvanized coating* in the most severely affected areas, which are buried under coal spillage.

Industrial Galvanizers and its representatives have made reasonable efforts to ensure the accuracy of the information provided in this publication, but it does not constitute product advice. The information is of a general nature only and does not take into account your individual situation or needs. It should not be used, relied upon, or treated as a substitute for specific professional advice. Industrial Galvanizers recommend that you obtain your own independent professional advice before making any decision in relation to your particular requirements or circumstances.

INDUSTRIAL GALVANIZERS
A valmont COMPANY

Galvanizing and Coal - 45 Years' Experience.

TRIED & PROVEN

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

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.

Case History Performance

The stockpile conveyors at Kooragang Coal Terminal, handle in excess of 50 million tonnes of coal annually and have been in service since 1983. All of the external conveyor steelwork remains in good condition, with all test sites still having over 75* microns of galvanized coating.

Some sections under the conveyor belts, which are frequently wet by the de-dusting sprays, reached the end of their service life and were replaced after ten years. The Kooragang site is classified as an industrial marine environment.

The Macquarie Coal Preparation Plant was commissioned in 1982, and has been monitored regularly since start-up. All the structural members, including the column bases subject to spillage and wash down runoff are still in good condition. The hardness of the process water has contributed to this good performance because of its scaling effect on the galvanized coating.

The worst areas for galvanizing have been in the areas immediately adjacent to the washery screens. These areas are constantly wet and are subject to spillage of low pH wash water. Rapid corrosion of the pre-galvanized purlins and continuously galvanized formwork supporting the concrete floors has occurred where they have been subject to wet spillage.

Heavily (hot-dip) galvanized purlins have been supplied as a replacement for the less durable pre-galvanized products with the expectation of 200% increase in service life.

Projects undertaken in Central Queensland, such as the North Goonyella Mine development, which commenced operation in the early 1990's have had galvanized coating performance audits conducted after 12 years of operation. These audits found no significant deterioration of the coating with the likelihood of a maintenance free service life of the structural steelwork in the coal treatment plant exceeding 50 years.

A.C.N. 000 545 415

Registered Office:
11 Talavera Road,
Macquarie Park, NSW 2113