

**Tree Island
Industries Ltd.**

30 August, 2013



Re: Storage and transportation of galvanized (zinc coated) wire products.

Typical problem with galvanized coatings is 'white rust' or 'storage stains' Defect appears as a white, powdery deposit on the surface of the galvanized coating. White rust is detrimental to the galvanized products appearance and in some cases can significantly damage the coating.

The durability of the zinc coating is determined by the coating weight and the stable oxide film that forms when zinc is exposed to the atmosphere.

Zinc reaction with atmosphere occurs in two stages:

1. Zinc reacts with moisture and oxygen to form Zn hydroxide.

Zinc hydroxide or "white rust" is porous and has minor protective effect.

2. Zn hydroxide reacts further with carbon dioxide in the atmosphere, forming a basic zinc carbonate. This film is dense and adherent and is mainly responsible for the excellent resistance of zinc to ordinary atmospheres.

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When galvanized steel is stored or transported in humid conditions that don't allow free flowing air, only first reaction occurs, resulting in the formation of excessive layer of zinc hydroxide (white rust). Usually the damage is cosmetic. However If unfavorable storage condition is not corrected, formation of the white rust will continue. The reaction may consume portion of the zinc coating with subsequent reduction in the product service life.

To avoid storage white rust the following rules must apply:

- Keep the galvanized products dry.
- Store in the dry and well ventilated areas.
- Avoid condensation by allowing air circulation between the surfaces.
- If stored outside: stack to provide for drainage of water. When tarp coverage is used, it must be removed periodically to allow drying and avoid condensation.



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