

Preventing white rust during storage

Steel products may be stored for weeks or months, which can be ample time for white rust to form.

- > **Do not expose to moist air, salt, or condensation** – even when undercover.
- > **Store the product at a slight angle**, not flat – so any water has a chance to run off.
- > **Store as individual products**, not in pack form – this allows free-flowing air on the surface of each length.
- > **Keep the product off the ground.**
- > **Inspect regularly and keep the product clean** – swarf, dust and other debris can attract or retain water, and prevent evaporation. Clean and dry immediately if any build-up is found.
- > **Take pre-emptive action** – if a bundle of products becomes wet, break the bundle open and dry. Don't wait for white rust, and don't assume moisture hasn't penetrated to the core of the bundle.
- > **Don't use tarps for long-term storage** – as these can trap water and promote condensation.
- > **Pick the right dunnage** or packing between products – use plastic or wood that is seasoned and dry, seasoned and dressed pine is suitable. Never use wood that is resinous, or has been treated with preservatives or fire-retardant chemicals. Never use cardboard or paper products, cinders, clinkers or anything even slightly acidic.

How can white rust be fixed?

If you notice white rust then immediately:

Dry and clean

- > Move the product to a dry, well-ventilated area.
- > Dry the product thoroughly.
- > Remove white rust stains with a stiff nylon brush (for example Scotch-Brite) or with a rag soaked in methylated spirits.

If this process does not remove the white rust then:

Use a specialised cleaning product

| Product | What it is and how to use | Pros and cons |
|---------------|--|---|
| Lime juice | Apply with a stiff nylon brush to remove the white rust | Cheap, readily available from supermarkets or industrial stores |
| White vinegar | | |
| Deoxidine 624 | Made by Henkel Australia, who recommend a solution of 1 part Deoxidine 624 to 4 parts water. This is a specialist cleaner that destroys rust | Contact Henkel Australia www.henkel.com.au (03) 9724 6444 |
| CLR | 'Calcium, Lime, Rust' specialist cleaning product made by Jelmar | Contact Sabrands on (03) 9693 0500 |

Warning: Correct care and handling procedures must be adhered to when using cleaning products. Please refer to manufacturer's recommendations and Material Safety Data Sheets.

Note:

- > Once clean then carefully rinse and dry, or chemically neutralise the products to remove any traces of acid so the zinc carbonate can begin to form.
- > If the surface is to be top coated then it should be painted immediately, certainly within four hours.



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White rust

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Steel care – white rust

Steel has many properties that make it suitable for all manner of construction applications. Because it contains iron, it is prone to rust. For this reason, steel is usually coated; with galvanizing being the most common process.

Galvanizing is the process of coating steel with zinc to form a durable, protective layer. Zinc is not only extremely resistant to corrosion, but can provide Cathodic protection – this means that if the zinc coating is damaged, exposing small areas of steel, the surrounding zinc will still be able to provide a measure of protection.

When a galvanized steel product leaves Austube Mills it is in perfect condition and ready for use. Because the product needs to be transported and often stored, care needs to be taken to avoid the risk of white rust forming.

What is white rust?

White rust is the white or grey deposit formed on the zinc coating when newly-galvanized steel products are closely-packed and stored or shipped under damp and poorly ventilated conditions. Weathered zinc surfaces which have already formed their normal protective layer of corrosion products are less likely to be affected.

The build-up of these white or grey deposits may make the extent of corrosion appear more serious than it actually is.

Most white rust can be easily removed with no significant long-term damage to the underlying zinc coating.



An example of white rust

Why is white rust a problem?

- > **Potential steel damage** – like all rust, untreated white rust will continue to deteriorate and can ultimately render the coating ineffective.
- > **Prevents the protective layer forming** – once white rust forms the zinc carbonate layer cannot fully form, which means the steel isn't protected against rust over the long-term.
- > **Costs time and money to remove** – white rust has to be removed, and while in early cases that could be a simple brush-off, it's still a process that someone has to do which takes time and money.
- > **Reduces long-term protection** – even if white rust is removed some of the zinc will have been consumed by the white rust process, which thins the zinc layer and reduces the overall protection.



A correctly tarped truck



An incorrectly tarped truck

How can white rust be prevented?

The key to prevention of white rust is proper storage and ventilation.

Preventing white rust during transport

Steel products are vulnerable during transport as they may experience significant changes in temperature or moisture conditions. Prevention tips include:

- > **Cover during transport** – careful tarping, done under cover. Never apply a wet tarp to a load.
- > **Use secondary covers** – use additional cover such as light plastic if there is any chance of rain.
- > **Do not load wet product** – if product to be loaded is wet, dry and clean it first.
- > **Use only dry** – dunnage or packing between products – if using timber, ensure it is seasoned.