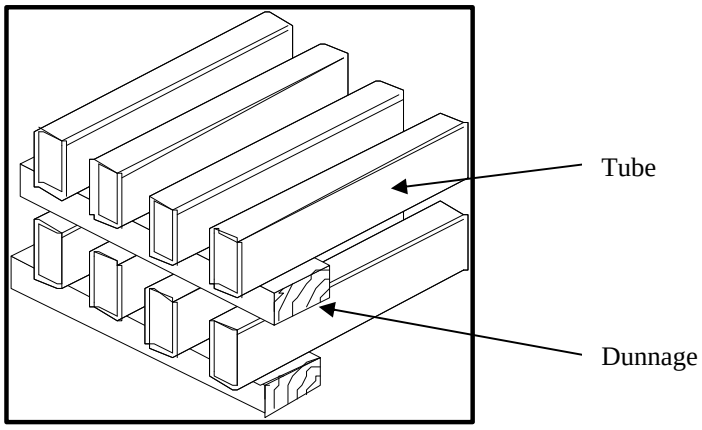
Galvanised Protection : Galvanising protects steel from corrosion by providing a tough metallic **Zinc** envelope which seals the steel surface from the corrosive action of the environment. Where there is minor damage to the **Zinc Coating**, protection of the steel is maintained by the cathodic action of the surrounding zinc coating.

Protective Carbonate Layer : New galvanised (**Zinc coated**) steel tube that has had the surface exposed to normal atmospheric conditions, **Zinc (Zn)** reacts with **Oxygen (O_2)** to form **Zinc Oxide (ZnO**), which further reacts with water molecules in the air to form **Zinc Hydroxide $Zn(OH)_2$**. Finally **Zinc Hydroxide** reacts with **Carbon Dioxide** (**CO_2**) in the atmosphere to yield a thin, impermeable, tenacious and quite insoluble dull grey layer of **Zinc Carbonate ($ZnCO_3$)**.

Should closely packed tubes become wet through rain or condensation, these reactions cannot take place and the development of white rust is inevitable.

Corrosion Inhibitor : New galvanised tube is treated with a specially formulated water displacing corrosion inhibiting oil. This temporary coating provides only short term storage.

Storage : NZTM offers fully galvanised steel tube which stores well. NZTM's specific storage recommendations are as follows:



1. Tube should be stored under cover in a dry, well-ventilated area, clear of the ground on dry dunnage. (As shown in the diagram).

2. If the tube arrives wet, we recommend it is dried immediately, (Wiping with an oily rag should suffice) prior to storage or use.

3. If the tube is not to be used immediately, then the bundles should be cut open and stacked with air-gaps between tubes with runners (seasoned timber) placed between successive rows to allow adequate ventilation. **Plastic films** are not suitable as they create condensation.

Wet Storage : Stains

Bulky White or Grey Deposit

A bulky White or Grey deposit, known as wet storage stain may form on the surface of closely stacked galvanised tubes which becomes damp under poorly ventilated conditions during storage or transit.

- Where the surface staining is light and smooth without the growth of the **Zinc Oxide (ZnO)** layer (as judged by lightly rubbing fingertips across the surface), the staining will gradually disappear and blend in with the surrounding **Zinc** surface as a result of normal weathering in service.

- Where the affected area will not be fully exposed in service or where it will be subjected to a humid environment wet storage staining must be removed to allow formation of the **Zinc Carbonate ($ZnCO_3$)** film.

Medium to Heavy Build-up of White Deposit

Medium to heavy build-up of white corrosion product must be removed; otherwise the essential protective film of **Zinc Carbonate** can not form in affected areas.

Removal of white deposit:

- Deposits should be removed using a stiff nylon bristled brush, care should be taken to ensure that only the white corrosion product is removed and avoid damaging the **Zinc** coating.

- For severe cases of wet storage stain, chemical cleaning methods may be employed.

Transportation:

Bundles of galvanised tube must be kept dry at all times.

Tube must be handled and transported and stored with due care. Care should be taken to ensure that the new tube is not positioned in the vicinity of chemicals which may attack the **Zinc** prior to the protective **Zinc Carbonate** (**$ZnCO_3$**) layer forming.