

Hot dip galvanizing as corrosion protection

Hot dip galvanizing is performed in accordance with the European standard EN-ISO 1461: 2009. This standard lists such things as coating layer thickness and appearance requirements.

Immediately after the steel product leaves the zinc bath, the surface is shiny (Image 1). But, the zinc coating surface is attacked immediately by air oxygen and zinc oxide is created. This process continues using the air's water and carbon dioxide content to create zinc carbonates on the surface. This is a natural process that provides a sealed and very good protection for the zinc plated steel surface. During this process, the surface gradually grows a dull, light gray color that becomes duller over time (Image 2).

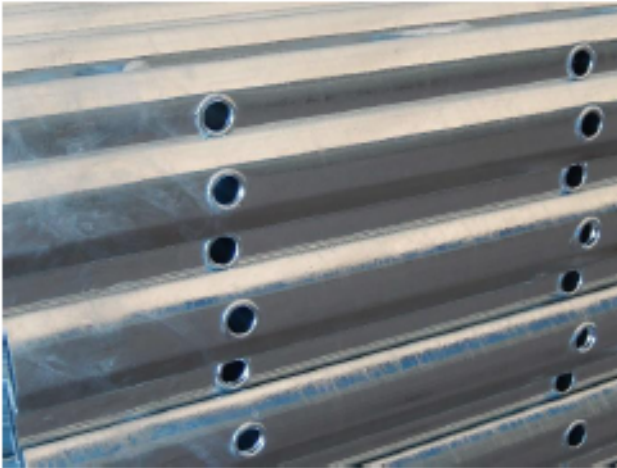


Image 1, Newly galvanized ladders



Image 2, Ladders matured with a healthy oxide layer

White rust

If hot dip galvanized material is exposed to condensation or rainwater lying on the surface during several days, white rust can appear. White rust has a very large volume compared to the thickness of the zinc surface on which it is formed. The attack can look serious but has no or little significance for the life of the corrosion protection (Image 3). White rust can be several millimeters thick and still not be a threat to the corrosion protection. In the event of good ventilation and exposure to weather and wind, the white rust will eventually erode and almost disappear.

According to the hot dip galvanizing standard EN ISO 1461, white rust alone is not a basis for quality claim, if the zinc layer below achieves specified minimum thickness value.



Image 3, White rust caused by water lying on the surface.