Technical Guidance on Removal and Prevention of Flash Rust on Stainless Steel

Contrary to popular belief stainless steel is susceptible to rusting if it is not correctly maintained.

Flash rust or "film rust" is caused by small steel particles on the surface of stainless steel which when combined with moisture dissolve forming iron oxides that contaminate the surface giving the appearance of rust. Examples of this type of contamination occurring are sites where grinding dust may occur.

In addition local rust spots can also occur due to small droplets of seawater which evaporate and increase the salt and chloride concentration in the air forming a greater corrosive load. Local corrosion of this type can also lead to pitting. **Even using marine quality grade 316 stainless steel near a coastal environment can lead to rust spots or tea stains.**

In general stainless steel is not maintenance free although it does have an extremely thin and dense oxide film that enables it to display rust resistance behaviour. However if this layer is perforated and the film is unable to recover automatically, the exposed metal which will start to corrode as soon as it comes into contact with moisture. Ideally therefore the passive film should remain intact at all times.

Quite often damage to the stainless steel surface will not produce problems because naturally occurring oxygen in the atmosphere will self heal the film, but should the surface become contaminated then rust formation will spread.

Traditional methods of removing local rust formation are either with pickling fluids, which can be harmful to the environment, or by mechanical methods such as with sandpaper, stainless steel brushes, or scourers, which can lead to surface damage and so reduce the resistance to corrosion.

An alternative is Innosoft B570 which is an oxide-dissolving organic fluid which has a deep cleansing effect and gives very effective and efficient results, being gentle on stains and tough on oxides and dirt. Use of Innosoft B570 quickly restores the stainless steel to its original condition, and used in conjunction with Innoclean B560 neutraliser which deposits a nanolayer on the surface to provide protection against any potential new corrosion. For further information on the Innosoft and Innoclean products visit **www.aalco. co.uk.**

It is important to remember that a maintenance protocol will need to be established by regular cleaning and periodic reapplication of the nanolayer.

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