



## Stainless steel maintenance

### Section 1

Stainless steel (SS) is a misnomer, it can get stained. There are different reasons why SS can appear to rust.

Stainless steel is passivated by oxygen in the air. A thin, dense oxide film results in SS being resistant to rust, however if any particle penetrates this layer maintenance is required to restore this layer, by cleaning and removal of the offending material.

#### 1) **Categories of corrosion**

##### a) Flash rust

This is caused when the surface is contaminated by fine particles of carbon steel (CS). This can happen anywhere, even if the product is in a store, near a railway track and the wind blows this onto the SS surface. Grinding CS nearby is even worse, as this can actually burn into the SS making removal of the "rust" virtually impossible

##### b) Aerosols

Prevalent in coastal areas, fine airborne droplets of salt water evaporate while being blown, resulting in a higher concentration of salt and chlorides in these tiny droplets. This can actually pit the surface as well. Even 316 (Surgical SS) will manifest this and we use 304 and mostly 430, so the client must realise there is no such thing as perfect stainless steel, that does not exist.

##### c) Contact with carbon steel

Even contact with CS straps, Forklift truck lifting forks; CS brackets; these can all deposit particles of CS onto the SS resulting in rust appearance.

##### d) Contact with saline solutions, blood and tin cans.

#### 2) **Cleaning processes**

SS is not maintenance free and is not indestructible. An oxide-dissolving organic agent should be used to clean the surfaces **followed by a basic neutraliser to passivate the SS surface.**





Rough scouring needs to be avoided. A good cleaning with a detergent like Handy Andy and applied with the grain using a light duty non-scratch scourer like Ritebrand, will remove the material. This followed by a good rinse of water should suffice.

A more robust SS cleaning agent is available for routine cleaning and is obtained from Kwapele Basadi Cleanit cc Tel No.+ 27 22 433 1890

a) Regular maintenance

The following steps should be carried out:

- Remove all product from the display case
- Using a wet cloth wipe down all stainless steel surfaces
- Apply Handy Andy or similar with a damp cloth and spread evenly over the entire surface to be cleaned.
- Allow to rest for 15 to 30 minutes
- Using a light duty non-scratch scourer like Ritebrand, rub in a linear direction with the grain of the steel. (You will note that stainless steel has a fine brush finish running in one direction. This is in a linear direction and is referred to as "the grain".)
- Keep on cleaning the shelf in a linear direction and following the grain until stains are removed. Do not rub across the grain nor rub in circles.
- Rinse off with clean water and repeat the process until all stains are removed.
- Clean surrounding surfaces and the case tub when stainless steel cleaning is completed.

The oxygen in the air will naturally passivate the surface over time, but if the bad material makes contact with the stainless steel surfaces again then the whole problem will be repeated. See *Point3 – Passivating agent*

b) Deep cleaning.

In the case where the customer has not cleaned regularly or sufficiently as described in *Point 2 (a) – Regular maintenance*; then a more industrial approach is required.

A product called PPC is to be used and is available from a company called ANZ Chemicals in Cape Town. Tel: 021 556 1167.

This product is not food friendly, is corrosive and is supplied in a concentrate to be mixed with water. This product is a powerful degreaser.





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The following steps must be carried out:

- Read the safety instructions on the product information booklet and/or product print before use.
- Wear personal protective equipment (PPE) as recommended by the manufacturer
- Remove all product from the display case
- Remove shelves and other parts which require cleaning from the case to a suitable cleaning area
- Using a wet cloth wipe down all stainless steel surfaces
- Apply PPC as per instructions and spread evenly over the entire surface to be cleaned.
- Using a light duty non-scratch scourer like Ritebrand, rub in a linear direction with the grain of the steel. (You will note that stainless steel has a fine brush finish running in one direction. This is in a linear direction and is referred to as “the grain”.)
- Keep on cleaning the shelf in a linear direction and following the grain until stains are removed. Do not rub across the grain nor rub in circles.
- If required, rinse off with clean water and repeat the process until all stains are removed.
- Reinstall cleaned components
- Clean surrounding surfaces and the case tub when stainless steel cleaning is completed.

### 3) **Passivating agent.**

Once cleaned, that the steel will not be passivated. Stainless steel will self-passivate over time so if this has not happened and the shelves are loaded with product, they will stain almost immediately.

This applies to any method of cleaning - Handy Andy et al.

A passivating agent will be required, available from DUVA Chemicals Tel: (011) 393-1610; Fax: (011) 393-2988; Email: [jvanduyn@duvachem.com](mailto:jvanduyn@duvachem.com)

Apply as per manufacturer's instructions.



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