

WIRE CLEANING AND MAINTENANCE GUIDELINES

CLEANING AND MAINTENANCE OF STAINLESS STEEL

The visual performance of stainless steel depends on five interrelated factors:

- Surface finish- smooth and clean and free of crevices
- Grade selection- appropriate and economical for the environment.
- Good design-rain washing of exterior surfaces and uniform draining with no ponding.
- Maintenance program- regular cleaning
- End user expectations

These technical guidelines outline and suggest how to perform and implement a maintenance program for the cleaning of stainless steel, for removing common stains and also some recommendations for remedial action if stains occur beyond regular maintenance or where such maintenance has not been performed.

MAINTENANCE: ROUTINE REMOVAL OF GRIME

Stainless steel holds its appearance best when it is cleaned and washed regularly. When washing it is best to use a soap or detergent or 1% ammonia solution in warm, low chloride water with cloths or soft brushes to avoid the scratching of the surface. Smears will be reduced if the surface is dried afterwards. This treatment best applies to bare stainless steel. Bleaches or abrasive powders or pastes are not recommended. Simply wiping with a damp cloth is not adequate as it smears corrosive deposits without removing them. Routine cleaning prevents stubborn stains building up. As a rule of thumb, if a window nearby is to be cleaned, then so should the stainless.

- Do not use harsh scrubbing tools scourers or chemicals
 - Do not rub with steel wool or scrape with steel tools. Stainless steel wool scouring pads are available for heavy duty work. They will scratch the stainless steel surface but won't leave fragments to go rusty (cross contamination).
 - Do not use scourers or cleaning cloths that have been used on ordinary steel. If using a scourer, test an inconspicuous area first as you could end up with a bright polished spot that doesn't match the rest of the surface. A scourer (such as Scotchbrite™) is simply plastic fibres with abrasive glued to the fibres. It will scratch the surface.
 - Do not rub plastic or other scourers across the grain of brushed or finished surfaces as this will form crevices which will trap contaminants and may cause corrosion.
 - Do not use concentrated bleach or hydrochloric acid-based cleaning products.
 - Do not drag rough items across a stainless surface. Remember that grit under smooth objects can scratch quite badly.
 - Avoid extended contact with salts or carbon steel items especially if wet. All can stain.

REMOVING SPECIFIC STAINING

The following procedures are recommended for getting rid of the most common types of staining.

FINGERPRINTS, OIL & GREASE AND OTHER ORGANIC CONTAMINATION

If mild detergents or strong alkaline formulations don't shift finger marks, you can remove them with glass cleaner on a soft cloth. Alternatively, you can use a small amount of alcohol, methylated spirits, acetone, mineral turpentine or eucalyptus oil. Then rinse with water then preferably dry.

You can give longer protection to high traffic areas by lightly rubbing with olive oil or baby oil followed by a polish and shine using a soft cloth. Proprietary formulations including lanolin based gels are available and are used extensively by the marine industry.

REMOVING PAINT

Apply paint stripper, taking care to follow all safety instructions. You may need to use a nylon brush or a scourer, but avoid metal scrapers as they will damage the surface.

ADHERENT SCALES AND MORTAR

Cement and mortar splashes should be washed off immediately before they set. Scales from hard water and dried mortar can be removed chemically but not using chemicals that contain hydrochloric acid. Hot 25% acetic acid (vinegar) or warm 10% phosphoric acids are very effective. Following the acid wash, the surface should be neutralised with dilute ammonia or sodium bicarbonate solution, rinsed and dried.

RUST MARKS (TEA STAIN)

The brown surface stains that can occur on stainless steel during the atmospheric exposure are simply cosmetic rust stains. This brown 'tea staining' on stainless steels will not progress to potential structural damage as could occur with a carbon steel structure. As a first step, apply a chalk based, bleach free, cream cleanser with a soft damp cloth and rub gently. If the mark still won't shift, it might be necessary to use a proprietary stainless steel cleaner. These are usually based on dangerous chemicals (such as phosphoric, oxalic or sulphuric acids) and must be handled with care according to the manufacturer's directions. After cleaning it is important to neutralise the acid with a 1% ammonia or sodium bicarbonate solution, rinse with clean water and wipe dry. If the rust has pitted the surface, it can be repaired with professional polishing and expert advice.

REMEDIAL WORK: CLEANING RUST STAINED FLAT SURFACES

Early action after the onset of tea staining is desirable, before the appearance of the underlying surface is changed. If the surface is pitted then it is probable that it will require mechanical repolishing. After mechanically cleaning off tea staining, it is preferable to passivate the surface by using nitric acid gel or, if the item is portable, by immersion in a nitric acid bath.

