



PRODUCT CARE





Introduction

All grades of stainless steel will stain and discolor due to surface deposits and can never be accepted as completely maintenance free.

In order to achieve maximum corrosion resistance the surface of the stainless steel must be kept clean. Provided the grade of stainless steel and the surface finish are correctly selected and cleaning schedules carried out on a regular basis, good performance and long life are assured.

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Factors Affecting Maintenance

Surface contamination and the formation of deposits must be prevented. These deposits may be minute particles of iron from other sources used on the building of new premises and not removed until after the stainless steel items have been fixed, or indeed minute iron particles released into the water supply from old iron pipe. Industrial and even naturally occurring atmospheric conditions can produce deposits which can be equally corrosive, e.g. salt deposits from marine conditions.

The working environment also offers more aggressive conditions e.g. hot humidity, such as in a swimming pool, increases the speed of discoloration and therefore requires the maintenance to be on a more frequent basis. Modern processes use many cleaners, sterilizers and bleaches for hygienic purposes. All these proprietary solutions, when used in accordance with makers instructions are safe but if used incorrectly (e.g. warm or concentrated) can cause discoloration and corrosion on the surface of any quality of stainless steel. Acid solutions are sometimes used to clean masonry and tiling of buildings but they should never be permitted to come into contact with metals, including stainless steel. If this should happen the acid solution must be removed immediately by copious applications of water.

If acids or other chemicals are used in the day-to-day operations on or around the stainless steel, such as in working laboratories, a regular daily maintenance program is even more essential to eliminate the possibility of such chemicals causing staining to the surface of the stainless steel.





Maintenance Program

With care taken during installation, cleaning before handing over to the client should present no special problems, although more attention than normal may be required if the installation period had been prolonged.

Where surface contamination is suspected, immediate attention to cleaning after site fixing will encourage a trouble free product. Food handling, pharmaceutical, laboratories, aerospace and certain nuclear applications require extremely high levels of cleanliness applicable to each industry.

Advice is often sought concerning the frequency of cleaning stainless steel and the answer is quite simple "clean the metal when it is dirty in order to restore its original appearance". This may vary from once to four times a year for external applications or it may be one or more times a day for an item in hygienic or aggressive situations. Frequency and cost of cleaning is lower with stainless steel than with many other materials and will often outweigh the initial higher cost of this superior product.

Cleaning Methods

Stainless steel is easy to clean. Washing with soap or a mild detergent and warm water followed by a water rinse is usually quite adequate in most situations. An enhanced aesthetic appearance will be achieved if the cleaned surface is finally wiped dry.

Where stainless steel has become extremely dirty with signs of surface discoloration (perhaps following periods of neglect, or mis-use) methods of cleaning are detailed on the chart on the next page.

Methods of Cleaning

PROBLEM	CLEANING AGENT	COMMENTS
Routine Cleaning. All finishes	Soap or mild detergent and water. (such as Fairy Liquid)	Sponge, rinse with clean water, wipe dry if necessary.
Stubborn stains and discoloration. All finishes	Mild cleaning solutions i.e. Jif, Bar Keepers Friend	Rinse well with clean water and wipe dry
Rust and other Corrosion Products. All finishes	Oxalic Acid. The cleaning solution should be applied with a swab and allowed to stand for 15-20 minutes before being washed away with water. May continue using Cif to give final clean	Rinse well with clean water (precautions for acid cleaners should be observed)
Scratches on Bush (Satin) Finish	Slight scratches. Impregnated nylon pads. Polishing with scurffs dressed with iron free abrasives. For deeper scratches; apply in direction of polishing. Then clean with soap or detergent as per routine cleaning	Do not use ordinary steel wool – iron particles can become embedded in stainless steel and cause further surface problems

Precautions

The above list is not exhaustive, and are simply suggestions for cleaning application in certain situations. In all cases, beyond the standard soap and water cleaning, the use of other cleaning products is at the users own risk.

Acids should only be used for on-site cleaning when all other methods have been proved unsatisfactory. Rubber gloves should be used and care taken to see that acid cleaners are not split over adjacent areas. Special precautions are necessary with oxalic acid. Solvents should not be used in closed places. Smoking must be avoided when using solvents.





Care of catering & domestic kitchen equipment

Stainless steel is widely used for catering and domestic kitchen equipment because of its strength, its ability to resist corrosion and its ease of cleaning. In fact stainless steel ranks alongside glass and new china in terms of “ease of cleaning” and in removal of bacteria from the surface. As a result of these virtues, the metal is often taken for granted and it is assumed that no problems will arise during its usage. However, some care is required to ensure that the stainless steel can live up to its reputation.

Day to Day Care:

To maintain the original appearance of the item, a regular cleaning routine should be carried out using the following guidelines:-

1. After use, wipe the item with a soft, damp, soapy cloth and rinse with clean water, preferably warm/hot water. This should remove most substances encountered within the kitchen environment.
2. For more tenacious deposits, including oil, grease and water-borne deposits, use a multi purpose cleanser (such as Jif) and apply with a soft, damp cloth. This should be followed by rinsing with fresh water, as above.
3. For really stubborn dirt or burnt on grease, a nylon scouring pad may be used in conjunction with the cream cleanser. On no account should “wire wool” pads be used unless they are made of stainless steel.
4. Harsh abrasives and scouring materials should not be used for cleaning stainless steel as they will leave scratch marks in the surface and damage the appearance of the article. Likewise, do not use wire brushes, scrapers or contaminated scouring pads.
5. If the article has a directional polished grain, any cleaning with abrasives should be carried out along this grain and not across it.
6. After use, always remove wet cleaning aids (such as cloths, pads, containers) from the surface, to avoid formation of water marks/stains.
7. If required, dry the item after use with a soft dry cloth or towel.

If the preceding guidelines are adhered to, the stainless steel article should offer excellent life and should live up to its reputation of being “stainless”.





Care of laboratory equipment

Care of stainless steel items used in laboratories is similar to that outlined above for domestic and catering situations. The main difference being that the frequency of cleaning will often need to be much greater, particularly where corrosive chemicals might come into contact with the surface of the stainless steel.

Ideally potentially corrosive chemicals should be removed immediately with soapy water followed by a thorough rinse with cold water, as extended exposure to even diluted chemicals for extended periods of time (in some cases even more than a few hours) can cause staining of the surface of the stainless steel.

In laboratory situations, a daily clean with soapy water and subsequent rinse and dry should be considered a minimum requirement to maintain the aesthetic appearance of the stainless steel item.





Surface deterioration

Neglect of the daily cleaning practice can lead to deterioration of the surface and, in some extreme cases, corrosion of the steel itself.

Surface Scratching



Although stainless steel is a relatively hard material, it is possible to introduce surface scuffs and scratches when harder objects are drawn across the metal surface. Examples of harder materials are knife blades (martensitic stainless steel), cast iron saucepans, ceramic pots and mugs (particularly the unglazed area on the base) and certain abrasives/scouring materials.

Scratching will be most noticeable on the drainer area of sinks where hard objects are likely to be placed during normal household use. These marks are usually only superficial and can be removed with a proprietary stainless steel cleaner/polish. A useful alternative is a car paint restorer, such as T-Cut.

Corrosion



The two most common types of corrosion that may be encountered, particularly on stainless steel sinks, are rust marks and pitting of the surface.

Rust Marks



When this type of staining occurs it is unlikely that the marks are caused by rusting of the stainless steel itself (similar marks can be found with both porcelain and plastics sinks). The rust marks are more likely to be the result of small particles of "ordinary steel" which have become attached to the surface; these have subsequently rusted in the damp environment of the sink. The most common source of such particles from "wire wool" scouring pads, but contamination may also occur from carbon steel utensils and old cast iron water supply pipes.

These brown marks are only superficial stains, which will not harm the sink; they should be removable using a soft, damp cloth and a multi purpose cream cleanser (such as Jif). Occasionally, it may be necessary to resort to a proprietary stainless steel cleanser, to return the surface of the sink to its original condition.

To avoid re-occurrence of any "rust-staining" it is essential that the source of the contamination is eliminated. In cases where contact cannot be avoided, it is even more important that the sink is given a through cleaning treatment after use.

Pitting



Another form of corrosion, which occasionally occurs in stainless steel sink bowls, is pitting of the surface; in extreme cases this may lead to perforation of the metal. The reason for this corrosive attack can usually be attributed to certain household products, for example:-

Bleaches

Most common domestic bleaches/sterilizing solutions contain chlorine in the form of sodium hypochlorite. They should always be used to the strengths prescribed by the manufacturer and should be thoroughly rinsed off with clean water immediately after use. Extended exposure to bleach can cause the surface of stainless steel to stain.

Any cleaning agents containing hypochlorites are unsuitable for long term contact with stainless steel and, even when used in the highly diluted form, they can give pitting under certain conditions. For this reason it is not advisable to use a stainless steel sink for soaking fabrics in these solutions, especially over long periods of time (e.g. overnight).

Silver Dip Cleaners

These are particularly harmful as they contain strong acids which can very quickly cause discoloration and pitting. If this type of cleaner comes into contact with the surface of the sink, it should be thoroughly rinsed off with clean water.

Foodstuffs

In general, stainless steel is fully resistant to all foodstuffs in common use. Only in isolated cases, such as when concentrated salt and vinegar mixtures are allowed to remain in contact with the steel for a long period, can any surface marking result. It is always good practice to wash down the stainless steel surface after food preparation.

Acids

Strong acids such as sulphuric and hydrochloric, and other laboratory grade chemicals, are very corrosive and should not be allowed to come into contact with stainless steel equipment, and in such cases where accidental contact occurs, the acid should be removed immediately and the stainless steel thoroughly cleaned.

Mild and diluted acids and chemicals, though less aggressive than in their concentrated forms, should not be allowed to remain in contact with the stainless steel surface for prolonged periods. It is good practice to remove such chemicals immediately after contact, or use of the stainless steel items, but in any case a daily cleaning and maintenance program should be in force to ensure the removal of such chemicals at the end of each day.



