

Stainless Steel | Technical Data Sheet

Laundry and Kitchen Sinks

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The Everhard "Stainless Steel" Sinks and Laundry Troughs are produced from A.I.S.I. grade 304 alloy. This, like all other "Stainless Steels", is based on iron with additives of at least 18 % chromium and 8% nickel. There is a wide range of "Stainless Steels", mostly containing these additives and a number of other rare elements in varying ratios to produce particular physical characteristics. However, grade 304 is probably the most versatile of the "Stainless Steel" range, and is one of the most widely used. It has applications in every field where good all-round resistance to corrosion from common causes is required, and is relatively easy to form in the "drawing" process. For example, it is commonly used for saucepans and sinks, as well as for making vessels for the brewing and dairy industry.

The term "Stainless Steel" has been in common use for many years, and it is generally assumed that these metals never rust or corrode. However, the hard facts are that nearly every metal will show signs of the results of corrosion, given time and the right corrosive influence. An object made from ordinary steel quickly becomes rusty when moisture from the atmosphere combines with the iron content of the steel to form a loose brown iron oxide film. This will destroy the surface and, eventually, the entire component. "Stainless Steels" also form a surface film, but as they contain the element chromium, the film is an invisible thin protective shield of durable chromium oxide. When this has formed, it prevents further chemical reaction, and the surface remains intact until it receives some form of damage.

When "Stainless Steels" show obvious signs of corrosion similar to rusty spots or stains, it is most likely that the tough shield layer of chromium oxide has been penetrated by an agent which is able to sustain an attack on the iron content, while neutralising the chromium's protective ability. Microscopic marks on the finished surface can provide a toe-hold for this kind of attack, and if speedy corrective action is not taken, the continuing destruction of the iron in the alloy produces pitting which accelerates the corrosion, ultimately leading to holes in the metal. Some acids will attack grade 304 "Stainless Steel", but of all the possible causes for this kind of damage, contact with chlorine, or chloride in some form, is by far the most common, and accounts for the greatest number of instances where the metal has been adversely affected. Another commonly occurring attacking agent in domestic situations is sodium sulphide.

The most common causes of the corrosion most likely to be encountered in domestic situations are as follows:

- During installation, direct contact with Building Trade chemicals such as Hydrochloric or Muriatic Acid used to clean tiles or masonry after installation, or exposure to the acid vapour.
- Direct contact with household cleansers containing Chlorine Bleaches such as White Knight, or products with a particularly harsh action, such as Nappy-San. Exposure to vapour is also sufficient to cause staining and spotting.
- A reasonably common source of chlorine attack is sea water. This contains salt, which is sodium chloride, and householders near the coast may already be aware of the threat this poses to many metals.
- One source of exposure to chloride, which is not commonly known, can result from being wrapped in a PVC bag or film when wet, then exposed to heat or sunlight. The condensation within the wrapper becomes heavily saturated with chloride freed from the wrapper material, and this attacks the metal.
- Sodium sulphide is present in a number of cleaning formulations, including Amway's Tri-Zyme Soaking /bleaching agent and SA8 Laundry powder.

In the average household, the Laundry Trough is most likely to be exposed to attack. Other "Stainless Steel" domestic equipment such as saucepans and the kitchen sink may briefly have cleansers containing chlorine or sodium sulphide used on them, but once the cleaning operation is over, their surfaces are rinsed with clean water and they are usually dried and even polished. The laundry trough tends to be used to soak garments in solutions containing one or more of these chemicals, and is less likely to be thoroughly rinsed with clean running water and dried after use. Foreign matter, such as grains of sand, may also remain in the trough, scratching the surface and allowing chemicals to penetrate the chromium oxide film. Leaving traces of corrosive chemicals on the trough surfaces, especially around the waste outlet, or by-pass ports, will almost certainly lead to unsightly brown stains and pitting. Containers of preparations of chlorine, acids, sodium sulphide, and other cleansing and/or corrosive agents should not be stored unsealed below the stainless steel trough.

Every time the trough is used, it should be thoroughly rinsed after use to remove all traces of residue, and all surfaces should be rubbed down with a soft cloth to remove moisture, dried spots and traces of cleansers etc.

These simple steps, carried out after every use, will keep your stainless steel trough sparkling and bright.

Whenever any slight staining appears, it is strongly recommended that the area be thoroughly cleaned with a neutral agent to remove any traces of chemical, and the stain and surrounding surfaces polished with a good quality low abrasive metal polish. Avoid coarse abrasives such as steel wool and wire brushes, as surface scratches may encourage further corrosion.