

TECHNICAL DATA SHEET

Product Code: 7102

Description: 130mm Stainless Steel Laboratory Forceps,
Straight, Sharp Ends.



Stainless Steel

Laboratory cleanliness and stainless steel are closely related and in many applications each is dependent upon the other and it's the stainless steel providing the degree of corrosion resistance that is necessary to prevent product contamination.

It's quick to clean and has an attractive shiny appearance making it the material of choice for applications requiring sterile surfaces. It is immune to sterilizing solutions, most of the organic chemicals and dyestuffs, and a wide variety of inorganic chemicals.

Stainless steel is an extremely durable surface; it can, however, be scratched or scuffed.

Corrosion Resistance

Water

Stainless steel is, by itself, metallurgically incapable of rusting in water. Tough stains or the appearance of what looks like rust are result of water-borne minerals or particles.

There may be occasions when "rust stains" appear but this is result of iron particles from an outside source in water supply and can be removed with cleaners containing oxalic acid such as Bar Keepers Friend® or dilute solution containing phosphoric acid. Do not use steel wool pads as they leave tiny particles that will develop into rust spots.

Acids

Sulphuric

No corrosion resistance from dilute to concentrated amounts.

Hydrochloric

Chlorides pose high risk of pitting corrosion, depending on concentrations.

Hydrofluoric

No corrosion resistance.

Phosphoric

Concentrations up to 80% at room temperature provide excellent corrosion resistance. Increasing the concentration and raising the temperature degrades stainless steel 304 corrosion performance.

Nitric

Solutions of Nitric with concentrations up to 60%, at room temperature, provide excellent corrosion resistance. Increasing the concentration and raising the temperature degrades stainless steel corrosion performance.

Alkalis

Generally majority of alkali solutions do not affect stainless steel.

Cleaning

Stainless steels need to be cleaned for aesthetic considerations and to preserve corrosion resistance. Any contamination of the surface by dirt, or other material, hinders the natural passivation process and traps corrosive agents, thus reducing corrosion protection. Some form of routine cleaning is necessary to preserve the appearance and integrity of the surface and actually thrive with frequent cleaning.

Unlike some other materials, it is impossible to “wear out” stainless steel by excessive cleaning.

Like any surface that is used it can get dirty which can consist of accumulated dust and a variety of contaminants that come from many sources in the laboratory. These contaminants will vary greatly in their effect on appearance and corrosion effects. While some may be easily removed, others may require specific cleaners for effective removal and it may be necessary to identify the contaminate or experiment with various cleaners. Frequently, warm water with or without a gentle detergent is sufficient. Next in order are mild non-scratching abrasive powders and general purpose cleaning solutions. These can be used with warm water, bristle brushes, sponges, or clean cloths.

Stainless steel metalware consumables can be autoclaved and resistant to sanitizing agents for sterile applications.

Types of cleaners and methods

Clean Water and Wipe is the simplest method and stainless surfaces thrive with frequent cleaning. A soft cloth and clean warm water should always be the first choice for mild stains and loose dirt and soils. A final rinse with clean water and a dry wipe will complete the process and eliminate the possibility of water stains.

Clifton Ultrasonic water baths can be useful providing a cleaning process, using the ultrasonic activity, in water based detergent solution removing debris and dirt. A final rinse with clean water and a dry wipe will complete the process and eliminate the possibility of water stains.

Solvent Cleaning using Organic solvents can be used to remove fresh debris, oils, chemicals that have not had time to oxidize or decompose. The preferred solvent is one that does not contain chlorine, such as acetone, methyl alcohol, and mineral spirits. There are many compounded or blended organic cleaners that are commercially available. Cleaning can be accomplished by immersing smaller articles directly into the solvent, wiping with solvent-impregnated cloths, or vapour or spray methods.

Commercial Cleaners many commercial cleaners compounded from phosphates, synthetic detergents, and alkalis are available for the cleaning of severely soiled or stained stainless surfaces. When used with a variety of cleaning methods, these cleaners can safely provide effective cleaning. A neutral cleaner low in chloride is preferred and must be rinsed thoroughly after cleaning. The fact that the label states "for stainless steel" is no guarantee that the product is suitable.

Do not use **chloride-containing detergents or carbon steel or wire wool brushes.**