

Stainless Steel Maintenance Guide



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Introduction

Stainless steel can easily be affected by corrosion. Stainless steel is not 100 percent stain proof and will rust in certain applications and locations without regular maintenance.

This guide is intended to provide you with tips that will help your stainless steel products looking like new long after they are installed.



How does brushing affect stainless steel?

Brushed stainless steel features a pattern of fine lines that run parallel to the direction it is brushed. The finish retains much of its metallic luster, but it also involves abrasive materials that cut the surface of the steel to some degree. Therefore, the brushed finishes may have a detrimental effect on corrosion resistance because it limits the ability of fluids to bead on the surface. As a result, the grooves can accumulate chloride ions and enable rusting to occur.



What causes stainless steel to corrode?

Common causes of stainless steel corrosion include:

- Chlorides
- Hydrochloric acid
- Sulphuric acid
- Contact with iron
- Contact with carbon steel
- High temperatures

Each geographic location will have different environmental factors, including changing weather, humidity and wind. Corrosion is accelerated in coastal areas with saltwater-spray exposure, and in areas where de-icing salts are used during the winter.

Stainless steel corrosion can also be triggered by contact with iron or carbon steel particles. If left unattended, rust spots can compromise the surface and may evolve into “pitting,” or localized corrosion. Contamination also is common when stainless steel is subject to sparks from nearby welding, cutting, drilling or grinding of carbon steel.



How can I care for stainless steel?

Keeping stainless steel products clean and free of salt or other corrosive elements is the best way to avoid having to deal with rust. This can be achieved with an occasional rinse with fresh water. In more severe environments, you may need to apply a protectant or wax that does not contain chlorides.

Best practices include:

- Wear clean gloves.
- Use stainless steel tools and components.
- Avoid contact with carbon steel or iron.
- Do not weld, cut, drill or grind carbon steel near stainless steel.
- Avoid contact with concrete detergents.
- When power washing nearby surfaces, wrap stainless steel with plastic.

- If chloride solutions or concrete detergents contact stainless steel, rinse immediately.

Never use the following products to clean stainless steel:

- Oven cleaners
- Chloride bleach
- All-purpose cleaners
- Any cleaner containing chloride
- Steel wool or other abrasive scrubbing pads

How to clean stainless steel

Stainless steel needs to be cleaned regularly to prevent corrosion and maintain a pristine appearance. With proper care, stainless steel should not corrode.

For most applications, a quick wash with soap and water followed by a clean-water rinse should be sufficient.

For best results:

- Clean stainless steel when it is cool to the touch.
- Use a mild detergent, or dilute (1%) ammonia solution in warm water.
- Use clean water. Gritty, dirty or excessively hard water can leave spots or brownish stains.
- Wipe down with a clean sponge or cloth.
- Use clean rinsing water to avoid water marks.
- Dry with disposable wipes or an air blower.

For tough stains, discoloration, oxidation and water stains, use mild, non-abrasive cleansers. Apply with a soft cloth or sponge, rinse with clean water and dry. Avoid scouring pastes. You can also use cream detergents containing calcium carbonate or citric acid.

To remove contaminants from stainless steel surfaces, use a soft cloth to apply a solution of oxalic acid. Leave the solution on the surface for a few minutes to dissolve contaminating particles. Once clean, thoroughly rinse away all residual solution with clean water.

If mortar or cement comes into contact with stainless steel, rinse immediately. Use a 10-

15 percent phosphoric acid-based solution in warm water. Spread cleaner evenly over the surface, wait 30-60 minutes, then neutralize the acid with an alkaline cleaner or diluted ammonia and rinse with clean water. On lime scale stains, you can also dilute one part of vinegar in three parts of water and apply with a nylon brush.

For neglected and corroded surfaces:

- **Minor:** Use an all-purpose lubricant, such as WD-40, to wipe the affected area. Stainless steel cleaners containing calcium carbonate or citric acid can also be used. Rinse thoroughly with clean water.
- **Moderate:** Use a phosphoric acid-based stainless steel cleaner, like E-NOX Clean. Spray on affected areas and spread cleaner evenly over the surface. Leave for 30-60 minutes. Neutralize the acid with a spray-on alkaline cleaner, like Uno SF. Wipe the surface clean with a paper towel and thoroughly rinse away all residues with clean water.
- **Severe:** Due to the highly corrosive nature of serious rust treatments, and the inherent risks to personnel and surrounding environments, a professional service provider is recommended. Severe rust is treated with a pickling bath, typically containing highly corrosive hydrofluoric acid.

Note: Stainless steel care and maintenance can require the use of harmful chemicals. Follow all use and safety instructions provided with cleaning or polishing agents. Ensure personal protective equipment is worn in accordance with occupational health and safety guidelines.

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