

Care and Maintenance of your Stainless Steel Architectural Hardware

What is stainless steel?

The term “stainless” steel derives from the development of specialty steels for the modern cutlery industry. It has now been adopted as a generic name for steels developed for any corrosion or oxidation (rust) resistant applications.

There are two types of stainless steel commonly used in the hardware industry, 304 grade and 316 (marine) grade. 316 grade stainless has a higher nickel content and a lower chromium content, but the most important difference is that 316 has molybdenum as an additive that improves its resistance to pitting and corrosion.

What is tea staining?

Tea staining can be described as: discolouration of the surface of stainless steel that does not affect the structural integrity or the longevity of the material. Visually it is a discolouration of the metal surface, which tends to follow the “grain” of any surface finish. Although unpleasant to look at, it is not a serious form of corrosion. Aesthetically it is unacceptable so the following information is designed to help you understand its causes and institute a maintenance plan to keep your hardware looking better for longer.

Where and why does tea staining occur?

Tea staining of stainless steels occurs most commonly in coastal areas and becomes progressively worse the closer you get to water (note that most of New Zealand is considered a coastal area). Other factors such as pollution, higher temperatures and humidity can also increase the effect.

Tea staining occurs when particles gather in surface troughs of the metal and oxidise or corrode. For this reason rougher surfaces promote tea staining. Smoother surface finishes are cleaner between washes and don't have surface grooves where chlorides (salt) and other contaminants can collect, concentrate and cause problems.

How to minimise tea staining?

Specify and insist on the right grade – Grade 316 should be selected as a minimum within 5kms of the coast, especially outside.

Surface Finish – The rule of thumb for surface finishes is the smoother the finish, the better the resistance to tea staining.

Perform regular maintenance – Wash regularly with clean fresh water, mild detergent and a cloth or soft brush. After washing rinse in clean water and wipe the surface dry with a soft absorbent cloth remembering to go with the grain on brushed stainless steel. Generally you should wash your stainless steel every time you wash your windows or every three months. Do not use abrasive cleaners or a scouring pad of any type as they may cause excessive wear and dull the finish. Even smooth stainless steel finishes in coastal environments may show tea staining if not washed regularly.

With a little bit of care you can radically minimise, if not prevent tea staining and get years of visual enjoyment from your stainless steel. It must be recognised that keeping a pristine finish requires understanding, additional effort and usually extra cost in the first instance. It is all about determining your expectations of the hardware and planning ahead to achieve and maintain the visual appeal.

Tea Staining Removal

Brown discolouration or tea staining of stainless steel in coastal environments is a common problem, but luckily it is one that can be prevented. If you have tea staining there are a few steps to take to bring your stainless steel hardware back to “as new” condition.

Get a specialist cleaning product such as the 3M Stainless Steel cleaner and a non scratch cleaning sponge, both readily available from your supermarket.

Apply clean water with the cleaning sponge and rub gently. If the mark won't shift, it may be necessary to use a stainless steel cleaner, in which case apply the cleaner and rub gently. An old toothbrush can be used to get into any nooks and crannies. After cleaning it is important to rinse the stainless steel with clean fresh water and buff with a soft cloth. Remember to always rub with the grain, **NEVER** across as you will spoil the finish and the stainless can lose its shine. Also **NEVER** use steel wool to clean stainless steel. It is usually made of carbon steel and the fragments left behind as well as scratching the surface will rust onto the stainless steel surface. If you must use a scourer, use stainless steel wool or a Scotchbrite plastic scourer. This will scratch the surface, but will not leave fragments behind to go rusty. On polished stainless steel surfaces this will damage the surface and is not recommended.