

Tea Staining, Surface Damage & Remedial Work

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What is Tea Staining?

The brown surface stains that can occur on stainless steel surfaces are in the vast majority of cases cosmetic rust stains known as 'tea staining'. These stains will not progress to cause any structural damage to the stainless steel.

The Cause



Failing to adequately clean off the glue/residue left behind after removing the plastic protective film supplied on stainless products. Retention of this invisible residue will prevent the chromium-oxide film from regenerating, leaving the surface susceptible to discolouration.



Using harsh cleaning liquids that contain powerful acidic or alkaline chemicals.



Using scourers that have previously been used on ordinary steel.



Using a cloth/brush that has previously been in contact with a harsh cleaning chemical.



Splashing chemicals or cleaning materials onto the stainless surface and not rinsing off.



Leaving acids in contact with the stainless for prolonged periods of time (particularly when allowed to dry) without being thoroughly rinsed off the surface.



Failing to keep the surface clean. Allowing the stainless to stay covered with dirt or grime for extended periods will prevent the chromium-oxide film from regenerating.



Installing or leaving a stainless-steel fixture in constant contact with a dissimilar metal - such as ordinary steel.



Allowing salt or salty foods to dry on the surface of the stainless.

Remedial Work

The remedial work required to rectify tea stains depends on the cause of the staining and the degree to which it has attached itself to the stainless.

First attempts to remove tea staining should be as unobtrusive as possible to the stainless steel.

Apply a chalk-based, bleach-free, cream cleanser with a soft damp cloth and rub gently. If this doesn't remove the tea staining it may be worth trying a proprietary stainless-steel cleaner. These are commonly based on dangerous chemicals (such as phosphoric, oxalic, or sulphamic acids) and must be handled with care.

Apply warm soapy water & scrub the wet surface hard with a new Scotch-Brite pad in the direction of the grain. Yes, stainless steel has a visible grain like timber. If the staining is severe you may need to use additional Scotch-Brite pads. Don't reuse any Scotch-Brite pad on another stainless product.

It is most likely that after this event of cleaning, the passive layer that protects that improves the resistance to corrosion has been removed.

Repairing the passive layer on stainless steel typically involves restoring the protective chromium oxide layer that prevents corrosion.

Restoring The Passive Layer

Process for treating stainless to restore the passive layer after sulfuric acid/mo-flo (Drain Cleaner) exposure, or tea staining.

Once clean and clear from corrosion to prevent further corrosion, shake a trigger spray bottle containing a mixture of 50% hydrogen peroxide 3% (available from the pharmacy) & 50% water, then spray on the surface. This should be allowed to sit on the surface wet for a minimum of 20 minutes, and preferably an hour. To keep the area wet for this time the solution may need to be repeatedly applied.

Once it has had the wet hydrogen peroxide sit on it for at least 20 minutes, it can be rinsed with water – do not wipe it down or touch the surface except for rinsing.

Finally, it will need to be allowed to sit untouched for 24 hours before being used again.

Remember that **maintaining the passive layer is crucial for the corrosion resistance of stainless steel**. Regular inspections and preventive measures can help prolong the life of the passive layer and ensure the longevity of stainless-steel surfaces.



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