

RAILS & LADDERS

# MAINTENANCE FOR STAINLESS STEEL RAILS AND EQUIPMENT



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# MAINTENANCE TO PREVENT RUST & CORROSION

All stainless steel will rust when exposed to adverse conditions such as chlorides (in swimming pools and marine environments) and other corrosive materials. However, proper maintenance can help prevent damaging rust and also correct rusting issues if they occur.

When a corrosive environment is present, stainless steel can be maintained to prevent rusting of the surface. The first, and most important, procedure is to make sure that the surface is passivated prior to installing the equipment. This removes any free iron that may have been on the surface from machining, welding, etc. Remember, stainless steel is around 70 - 80% iron. After passivation, a rust-resistant chromium oxide layer forms on the surface over time. Once protected by chromium, stainless steel is considered "passive" and requires little care.

However, without care all stainless steel exposed to pool air will show surface rust. This tarnish and rust is due to chlorides reacting with oxygen and iron on the surface and the inter-granular structure of stainless steel.

Daily rinsing with clean water is the best way to maintain the surface. This removes any chlorides that may have been splashed onto the surface in normal use. In addition, if ANY rust is visible it needs to be removed immediately, using a passivation product - Spectra Clean<sup>®</sup> System 1. This will remove the rust and re-passivate the surface. All areas passivated also require treatment with Spectra Shield<sup>®</sup> to ensure salts do not find a way into the structure of the steel.



# MAINTENANCE FOR SEVERELY RUSTED STEEL

Once stainless steel has rusted to the degree where corrosion is flaky, that may indicate pitting. Pitting is permanent, and will require more ongoing maintenance. However, even if pitted most rusted rails can be cleaned up with an aggressive cleaning approach.

## Steps for fixing and maintaining severely rusted railings

- 1 Remove the rust with Spectra Clean<sup>®</sup> System 1
- 2 Seal the inter-granular structure with Spectra Shield<sup>®</sup>
- 3 Conduct regular inspections and follow-up care to remove tarnish & light rust as it appears

Long-term protection for surfaces of new and old stainless steel can be attained by applying Spectra Shield<sup>®</sup> to the surface after removing the rust and drying the surface. This forms a protective layer in the pits and inter-granular boundaries that prevents air and water from creating corrosion below the surface. Without oxygen and salts from pool water making contact with the stainless steel, the rust will not grow.

**NOTE:** There are other considerations that will require efforts not described above. For clarification and assistance, please call us to discuss your particular situation.

# STAINLESS STEEL CARE & SEALING

## Initial treatment

- 1 Clean rails with passivation materials. Start with a dry railing and apply Spectra Clean ®System 1 to rail. The chemical must be reapplied as required to maintain a wet surface for 30 minutes.
- 2 After 10 minutes, agitate the surface with a non-abrasive pad (3M Scotchbrite ®white). If visible rust does not disappear, use a mildly abrasive pad (3M Scotchbrite ®maroon grade).

**NOTE:** If there is visible, crusty rust on the surface it will usually require a maroon pad. Do not use a coarser 3M pad, as green and higher will scratch the surface and create more corrosion points.

- 3 Reapply Spectra Clean ® and agitate as required. After 30 minutes of wet contact, thoroughly hose off the stainless steel with clean water.

**NOTE:** Unrinsed Spectra Clean ® will dry white. Rinse thoroughly so there is no residue after drying.

- 4 Thoroughly dry the stainless steel. First, hand dry so that watermarks don't develop. Then, allow the steel to dry naturally for 48 hours or more. If treating steel during pool operation, allow at least an additional 4 hours air drying and heat gun treatment to ensure water in pockets and seams fully evaporates.
- 5 Apply Spectra Shield ®Sealer. Use a cotton rag and apply sealant on to the steel so that is wet. Allow sealer to stay on rail for 10 minutes and then use a dry cotton rag to wipe excess away.

**NOTE:** Spectra Shield ®is not water-soluble and is difficult to remove. Avoid contact with deck, glass, or other surfaces.

# SPOT TREATMENT FOLLOW-UP CARE

Any area of the rail that was not passivated or where the sealant did not “take” will begin to show rust after treatment. This is usually due to not being thoroughly dry prior to sealer application or the steel was not sealed at all. If this occurs, re-treat using this procedure adapted for smaller scale treatments.

- 1 Thoroughly clean the spot using Spectra Clean<sup>®</sup> System 1 spray, and keep the area wet with the spray for 30 minutes.
- 2 Dry the area thoroughly with a heat gun. The area should be heated to a point that the steel is hot to the touch to evaporate the water in crevices, seams, and pits.
- 3 Once the area has cooled, apply Spectra Shield<sup>®</sup> generously to the surface. The surface should be very wet, but doesn't need to be dripping.
- 4 After 10 minutes, wipe clean with a dry cotton cloth.

## NOTES:

- This procedure can also be used on wallplates, door hardware, fountains, and other similar stainless steel items. However, when you cannot hose down a piece of equipment, use multiple wet rags to wipe off passivation materials prior to drying and treating with Spectra Shield<sup>®</sup>.

# CARE OF COMMON DECK ITEMS

These procedures are variations of the spot treatment mentioned above, but have been adapted to specific deck equipment we have found over time.

## Floor drain covers and other similar removable items

These small, removable items (floor drain grates, some escutcheons, and some compression anchor parts) can be treated by removing them. We recommend keeping some spares on hand to allow for removal and treatment. Remove small items and follow below.

- 1 Soak in Spectra Clean<sup>®</sup> System 1 in a bucket or other plastic container. The container must be free of any contaminants or residue of any sort.
- 2 Heavy corrosion may require a stainless steel brush and/or green Scotchbrite<sup>®</sup> scrub with Scotchbrite<sup>®</sup> as required to remove all corrosion.
- 3 Rinse very thoroughly.
- 4 Allow to air dry 24 hours or more, ideally off of the pool deck and in a warm environment. You can also apply heat with a heat gun as required to ensure all pits and crevices are dry.
- 5 Soak in Spectra Shield<sup>®</sup> Sealer for 10 minutes. Remove from bucket and dry off excess with a dry cotton cloth.

# CARE OF COMMON DECK ITEMS

## Anchors embedded in cement

Anchors in cement (stanchion post anchors, and some compression anchors) where rust is appearing need to be treated in place

- 1 Remove post or grab bar if there is one, so that anchor is empty.
- 2 Remove lids to anchor if present.
- 3 Clean with Spectra Clean ®System 1 using a Scotchbrite ® pad to agitate and remove all corrosion. The coarseness of the Scotchbrite ® pad should match the amount of corrosion. Some heavy corrosion may require a stainless steel brush.
- 4 Rinse thoroughly with clean water.
- 5 Dry the entire anchor inside and out with a clean cotton towel to remove excess water. Treat anchor with a heat gun at the flange at deck surface and the interior. The metal should be fairly hot to the touch, and all water should evaporate from the pores and seams both inside and out.
- 6 Apply Spectra Shield ® generously to surface. The surface should be very wet, but not dripping. After 10 minutes, wipe area with a dry cotton cloth.