

# Commercial Aquatic Supplies

A Division of DB Perks & Associates Ltd.

#108-2411 Dollarton Hwy. North Vancouver, B.C. V7H 0A3

Local tel: 604-980-2812, Toll free tel: 1-800-663-5905

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## Maintenance of Stainless Steel Railings & Equipment:

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### *Introduction & Background information:*

All stainless steel will rust if exposed to adverse conditions such as chlorides (in swimming pools and marine environment) and other corrosive materials. However, proper maintenance procedures can prevent occurrence of damaging rust and correct rusting problems if it does occur.

### *Maintenance to prevent rusting and corrosion:*

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 installation of 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 is on the surface, replacing the iron that was there.

After installation of the steel in a chloride or other corrosive environment (all swimming pools), procedures must be put in place to regularly clean and re-passivate the surface, since the chlorides will get into the inter-granular boundaries of the steel and corrosion can begin. 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. If ANY rust is seen during normal use it needs to be removed immediately, using a passivation product (Spectra-Clean System 1) This will remove the rust and re-passivate the surface.

### *Maintenance of stainless steel that has rusted severely:*

Once the stainless steel has rusted to the degree where pitting of the surface has occurred, special precautions must be taken to protect the integrity of the steel. It is important to keep the rust removed from the surface, since rust is self-propagating and will spread rapidly within the steel and on the surface. The first process is to remove the rust regularly with a product like Spectra-Clean System 1. If pitting of the surface has already occurred it is likely that the rust will continue to bleed out of the pits and come to the surface. Constant maintenance is necessary to make sure that the rust is removed as soon as possible after it is evident. Use of Non-scratching Scotchbrite® can help to remove crusty rust.

Long term protection of the surface for new stainless & old stainless can be attained by applying Spectra Shield 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 entering the rusted spots. Without the air and water the rust will not grow.

There are sometimes other considerations that require effort not discussed above. For clarification and assistance you can call us to discuss your particular situation.

**This information is for System 1 and System 2 (gel formulation)**

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## Procedures & Techniques Stainless Steel Care & Sealing:

Initial Treatment of Stainless with Spectra shield:

This is a three step process that must be completed very thoroughly to get best results.

- 1) Clean rails with passivation materials
  - a) Start with a dry railing
  - b) Apply passivation chemicals Spectra-Clean System 1 or 2 to rail (spray or wipe on)
  - c) This chemical must be re-sprayed or re-applied as required to maintain a wet surface for 30 minutes.
  - d) After 10 minutes agitate the surface with a non-abrasive pad (3M scotchbrite white). (If visible rust does not seem to disappear, use a mildly abrasive pad (3M scotchbrite grade maroon).
    - On existing rails where there is visible rust &/or pitting you will usually require a maroon pad
    - Do not use a more course 3M pad than maroon, as green and higher will scratch surface, thus creating more corrosion points.
  - e) Re-apply chemical & agitate as required.
  - f) After 30 minutes of wet contact, very thoroughly hose off stainless. (Un-rinsed chemical will dry white; you want to get it all off with no residue after drying).
  - g) Hand dry so that watermarks do not develop.
- 2) Thoroughly Dry Stainless:
  - a) Steel needs to be more than dry to the touch. Seams & crevices (as well as pit pockets) must be bone dry in order to accept the sealer.
  - b) Best practice: Allow steel to dry 48 hours (or more)  
If treating steel during pool operation allow 4+ hours air dry & heat gun treatment to ensure water in pockets & seams etc. fully evaporates.
- 3) Apply Spectra shield Sealer  
Sealing is the fastest part of the procedure. Use a cotton rage & wipe sealer onto steel so that steel is wet with sealer (very wet not just damp) Allow sealer to stay on rail for 10 minutes then use a dry cotton rag to wipe excess away. Spectra shield is not water soluble and is difficult to remove. Be Careful to minimize amount of sealer that hits deck, glass or other surfaces.

### Spot Treatment Follow-up Care:

Any area of rail missed will begin to show rust a few weeks after treatment (usually due to either: Not dry enough prior to sealer application or not sealed) Re-treat that small specific area using procedure above adapted for smaller scale, but do not change any of the steps.

- a) Thorough cleaning of specific spot using Spectra-Clean System 1 spray; keep area wet with Spectra-Clean System 1 for 30 minutes.
- b) Area must be very dry before final step; for small areas a heat gun is an ideal solution. Areas needs to heated to the point that the metal is warm to hot resulting in evaporation of water in crevices, seams and pits.
- c) Final step is an application of SPECTRA SHIELD. Apply SPECTRA SHIELD generously to surface (surface to be very wet but doesn't need to be dripping) After 10 minutes wipe area with dry cotton cloth.

### Floor Drain Covers Etc:

These small removable items (floor drain grates, some escutcheons, & some compression anchor parts) can be treated by removing them. We recommend acquiring spares to allow removal and treatment. Remove small item and follow a variation of application procedure from above.

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- a) Soak in Spectra-Clean System 1 in a bucket or other plastic container. The plastic container must be free of any contaminants or residue of any sort.
- b) Heavy Corrosion may require a stainless steel brush & or green scotchbrite. Scrub with scotchbrite as required to remove all corrosion.
- c) Rinse very thoroughly.
- d) Allow to air dry 24 hours or more. Ideally off pool deck, ideally in a warm environment; and/or apply heat with heat gun as required to ensure all pits and crevices are **DRY**.
- e) Soak in SPECTRA SHIELD in a bucket for 10 minutes. Remove from bucket & dry off excess sealer with dry cotton cloth.

### Anchors imbedded in cement:

Anchors in cement where rust is appearing need to be treated in place. (Stanchion post anchors & some compression anchors).

- a) Remove post or grab bar if the is one, so anchor is empty.
- b) Remove lids to anchor if present.
- c) Clean with Spectra-Clean System 1 using a scotchbrite pad to agitate. Coarseness of scotchbrite pad should match amount of corrosion. Some heavy corrosion may require a stainless steel brush & or green scotchbrite. Scrub with scotchbrite as required removing all corrosion.
- d) Rinse very thoroughly.
- e) Dry inside and out the entire anchor with a clean cotton towel to remove excess water. Treat anchor with heat gun both at the flange at deck surface and the interior of anchor. The goal is to get enough heat onto metal that it's fairly hot to touch and all water in pores and seams evaporates both on top and inside.
- f) Final step is an application of SPECTRA SHIELD. Apply SPECTRA SHIELD generously to surface (surface to be very wet but not dripping) After 10 minutes wipe area with dry cotton cloth.

### Wall plates, door hardware, fountains and other miscellaneous stainless:

These pieces use the same procedure as SPOT cleaning as outlined above. However where you cannot hose a piece of equipment, use multiple wet rags to wipe off passivation materials prior to drying and treating with SPECTRA SHIELD.

- a) Thorough cleaning using Spectra-Clean System 1 Spray; keep area wet with Spectra-Clean System 1 for 30 minutes.
- b) Remove Spectra-Clean System 1 with wet clothes/sponges
- c) Area must be VERY DRY before final step; for small areas heat gun is ideal solution or long period of air dry (24 hours +)
- d) Final step is an application of SPECTRA SHIELD to seal surface, seams & crevices. Apply SPECTRA SHIELD generously to surface. (surface to be very wet but not dripping) After 10 minutes wipe area dry with a clean dry cotton cloth.