

## Important Technical Information

### Pickling & Passivation of STAINLESS STEEL 304 & 316L Chemical Plants / Fabrications : PRODUCTS OFFERED By INNOVATIVE Coating for Pickling & Passivation of SS Fabrications



#### How do I know which SS Pickling and Passivation product to use?

Primary considerations are the grades of stainless steel being used and the size of the parts. Most Commonly used products for Pickling and Passivation of 304 and 316L Grade SS Fabrications are available. The most important criteria of selection being COST per Kg, Cleaning Efficiency, consumption, Consistency and Stability.

**MOST IMPORTANT :** Perform the process in areas open to sky or well VENTILATED AREAS. Nitrous OXIDE & Hydrofluoric Acid Gases generated are toxic, cause SEVERE IRRITATION to THROAT and respiratory Track. Operators MUST AVOID DIRECT BREATHING of Acidic Vapours. NEVER EVER USE ANY PRODUCTS FORMULATED with SULPHURIC ACID / HYDROCHLORIC ACID. These Acids if used for Cleaning of Weld Joints, or for Pickling & Passivation of ANY GRADE OF STEEL, will lead to POST CLEANING CORROSION WITHIN 15 Days to 3 Months. More-over both these acids will also cause HYDREGEN IMBRITTEMENT & will create POROSITY on SS Surface. This will lead to RUSTING OF SS Fabrications. Rusting is a SUB-SURFACE PHENOMENON will lead to CREEPING CORROSION. Once the Metal or Fabrication starts rusting due to these Factors, Recovery becomes impossible / most expensive.

#### Can outdoors on-site passivation be performed during the winter months?

Pickling & Passivation chemicals are used at ROOM Temperature. These contain IONIZABLE ACIDS and hence not Recommended to be used in Rainy seasons, or in open areas. Room temperature or higher is preferred, but outdoor passivation in cold seasons may be done if the exposure time is extended beyond the recommended timings, due to slower pace of chemical action in Damp weathers.

#### Can I touch, handle and use BRITOSS RANGE Products by hand ?

NO . SS pickling Products contain STRONG Acids & Oxidizing Chemicals. These Products must be handled after wearing ALL THE SAFETY Equipments.

#### Which tools / means of application are recommended for use of SS pickling & Passivation Products during cleaning ?

Use any PLASTIC SPRAY BOTTLE available for Spraying Spray type product . Use face-shield during the Spray. For application by Brushing, use 1" or 3" brush with NYLON Bristles. Always Dip the brush in water after application is complete : this will increase the utility performance life of brush.

#### Are the SS pickling Range Products Water Soluble & Water Washable : ?

YES . All SS Pickling Range products are completely Water Washable.

#### Any dilutions recommended for SS Pickling Products ?

SS Pickling Products are to be used AS SUPPLIED WITOUT ANY DILUTIONS.

#### Are SS Pickling Products RoHS Compliant ?

Yes. All SS Pickling Products must be essentially RoHS Compliant. & Free from Halides & Sulphur.

#### TO which Standards are BRITOSS RANGE PRODUCTS Confirming ?

SS Pickling Products must CONFIRM TO REQUIREMENTS OF ASTM A 380 & IS 10117

#### Do we need a ventilation system to use SS Pickling Products in our plant ?

SS Pickling Products are ACIDIC & Fuming in nature. The use of these chemicals SHALL BE DONE in OPEN AREA or highly ventilated areas. Do not use these products in HOT SUN LIGHT or Beyond 45 °C

#### WHAT IS THE RECOMMENDED SHELF LIFE OF BRITOSS RANGE PRODUCTS ? :

FOR BEST AND OPTIMUM Results and performance , USE BRITOSS PRODUCTS within SIX MONTHS from the Time of Purchase. Keep the Containers TIGHTLY CLOSED with Inner and OUTER Lids . Store in a Cool & Dry Place .

#### WHAT ARE THE PRECAUTIONS TO BE TAKEN ?

SS Pickling Products Are HIGHLY ACIDIC . Avoid Body Contacts. Avoid Spillage on Floor . The Products will attack TILES, STONE, Marble, Granite, Glass, Wood, Laminations and Concrete & Cement Floorings. Wash the Spill Area with plenty of running water. Operators MUST USE ALL THE SAFETY GEARS (viz: Face Shield, Goggles , Face Mask, Respiratory Filters, Rubber Apron Full size, Hand-Gloves , Gum-Boots Etc ) , while working with these products. Call for Medical attention in case of prolonged exposure to FUMES or Direct Contact with these products.

#### How do I know if my parts are passivated ?

The appearance of the parts is not changed by passivation. Accepted passivation test methods are given in ASTM A 967 and other specifications. The copper sulfate test is the most common quick and easy method for grades with high chromium content.

#### Do I need to pre-clean my Fabricated equipment parts ?

It is utmost necessary to REMOVE light oils or dirt on the parts. BRITOSS products are excellent cleaners and can handle light grease and oils. However, stainless steel alloys high in sulfur or carbon usually require a pretreatment in an alkaline bath such as CLEENOL SS Degreaser. Wiping with 7-10 % Solution of CLEENOL SS will remove Surface oil & Grease.

#### Should I heat my BRITOSS Dip bath For Cleaning of Small SS Parts by Dipping ?

The passivation requires less time at higher temperatures, so we recommend heating when available, but room temperature is usually sufficient as well.

#### Do I have to use De-Ionized / De-Mineralized water with BRITOSS Range Products ?

No. You may use any type of water you choose for washing and rinsing. Certain industries have purity concerns and choose to only use DI or another type of purified water. For this reason BRITOSS Range is produced using DI water. However using tap water has no negative effect on the passivation process. Using purified water for the final rinse bath can help avoid water-spotting issues.

#### How long does BRITOSS DIP in a bath last ?

This depends on the quantity and geometry of the parts being passivated and is difficult to predict. Use bath monitoring procedures recommended by INNOVATIVE to maintain the effectiveness of your bath. The best judge to decide on this parameter in the operator himself. His own experience and discretion will help in standardization.

#### Will BRITOSS Range products affect the finish of the stainless steel ?

Nitric acid based passivation solution will ETCH to SS Surface to an extent . Hence it will affect the Original Gloss of SS marginally. These products are recommended for use on Polishes surfaces.

#### Can BRITOSS RANGE products be used on metals other than stainless steel ?

Britoss Range may be used to remove surface iron from nearly any metal, including titanium, aluminum, hastalloy, inconel, cobalt chrome, etc. It is also works as a good brightener for copper, brass, and bronze when used as a flash cleaner.

#### Are Britoss Range products safe for rubber, plastic, Soldering and brazings ?

Britoss range products are manufacture with NITRIC Acid in its formulation . Hence Prolonged exposure for Rubbers, Plastics, HDPE, PVC, Synthetic Rubber are Not Recommended. Use of PTFE Materials & to some extent HDPE / PP can be done

#### Are BRITOSS RANGE products not compatible with any other metals ?

BRITOSS RANGE PRODUCTS , being acidic, will cause damage to the surfaces of concrete, Mild Steel; carbon steel, zinc, and galvanized steel. Avoid exposure of these materials to BRITOSS RANGE and rinse immediately if there is an inadvertent spill onto these materials. we recommend extra dilution and room temperature operation. PVC pipe and fittings made from copper, brass, or bronze are not recommended for long term use with BRITOSS Range Products.

#### Will BRITOSS RANGE products clean off heat scales, Black Burn Marks or weld dis-coloration ?

BRITOSS GEL , BRITOSS SPRAY and BRITOSS DIP are meant for TOTAL AND COMPLETE REMOVAL of all Black Scales, burn-marks due to Heat Treatment and Welding. The Process time can be 5 Min to 30 Min. The surface is completely WATER WASHED for removal of RESIDUAL Acids, after cleaning.

#### Will BRITOSS RANGE products remove rust From MILD STEEL Fabrications : ?

Britoss Range products are NOT RECOMMENDED for MILD STEEL FABRICATIONS. Innovative Coating Industries offer RUSTOGEL 1406, PHOSGEL and GALVAPREP for derusting MS & GI fabrications. These are used as PRE-TREATMENT for MS , GI steels are especially formulated for faster rust removal. For Removal of RUST on SS 304 & 316 L , Regular BRITOSS Range Products are the ONLY RECOMMENDED Products.

#### My stainless steel item is a railing, sculpture, or otherwise too large and unwieldy for immersion in a bath . What product can I use ?

BRITOSS GEL & BRITOSS SPRAY are especially made for such applications and can be used at your location or at site.

#### How to complete EFFLUENT TREATMENT of WASH WATERS & chemical Spillage on Work Floor ?

Britoss Range Products are Acidic and will etch the Floor. These Spillage as well as Wash water shall be neutralized by sprinkling Lime Water / Alkaline Neutralizer till the Final Effluent pH is 7.



The Author of this Article , Prof PRADEEP VAIDYA , CEO of PROMTECH CONSULTANCY GROUP , has 40 yrs + Experience in Metal Finishing Chemicals and Products Manufacturing. From their MIDC Pune based manufacturing Plant , INNOVATIVE COATING INDUSTRIES offer TOTAL SOLUTIONs for every METAL CLEANING and Protection Chemicals, Paints and Coatings : Call PRADEEP Vaidya 9820181738 SONIA Vaidya : 9819813015 or [puvpromtech@gmail.com](mailto:puvpromtech@gmail.com) [soniavaidya30@gmail.com](mailto:soniavaidya30@gmail.com) [www.promtecherosol.com](http://www.promtecherosol.com)