3. CORROSION PRODUCTS : All cleaning methods as mentioned above should be extended to cater for the more difficult removal of rust.

4. SOLUBLE SALTS : These are commonly encountered on steel that has been allowed to rust in a polluted atmosphere. Removal of salts formed in pits is difficult but essential if premature failure is to be avoided. The use of wet blasting is advised. Careful control by visual and chemical means is advocated.

Blast cleaning is strongly recommended in all cases where high quality long life expectancy systems are called for.

5. PHOSPHATING : Chemical conversion treatment is common in OEM industries where generally CRCA/ HRCA sheets of lower thickness are used. Chemical conversion treatment is, commonly known as Phosphating, generally done with dipping or spraying.

Dip phosphating is the most commonly adopted method in OEM industry. Spray phosphating is preferred mostly where space constraint is observed. Spray phosphating is generally coarser in structure & hence less preferred, while dip phosphating has more controlled particle size & structure.

Generally chemical conversion is done with metal ions like Zinc modified with Calcium or Zinc with Nickel & Manganese. The tricationic coating with Zinc, Nickel & Manganese is done in Automobile Industry, while treatment with Iron & Calcium modified Zinc is preferred in other OEM Industries.

Phosphating includes the stages of:

1. Cleaning of metal degreasing,
2. Removal of rust derusting (in severe cases Acid pickling)
3. Surface activation,
4. Phosphating,
5. Passivation.

The actual work stages may vary from 3 to 10 depending upon many factors. The no. of tanks generally employed are 7 & hence known as 7-tank process. The phosphating improves the adhesion & corrosion resistance properties of the paint system. There are variety phosphating chemicals available in the market. Chemical which gives compact coating from a reputed suppliers are to be preferred as the process required lots of technical support for bath maintenance.

Notes: The 3 in 1 solution / cold phosphating without rinsing generally gives very poor performance as they leave left over of acid on the surface which interface in corrosion resistance subsequently and shall be avoided.

B. For Non-ferrous Metals

The following recommendations for non-ferrous metals, including galvanised steel, will provide the proper surfaces on which to apply coating.

Aluminium : Solvent was to remove organic matter. For some systems, either a chromates or phosphate pre-treatment is recommended. For other systems, they may be applied directly to aluminium if an anchor pattern is provided by brush-blasting. Application of an etch primer, viz. GP PRIME 401 or GP PRIME 203 is recommended before painting.

Note : Blasting is never used on sheet aluminium because of the warping may occur.

Galvanised Metal : New galvanised metal often comes from the mill or supplier with a light, invisible coating of Cosmo line or other material to keep it bright. This must be removed by solvent washing.

Weatherized galvanised metal may have remnants of the brightener remaining or a light skiff of zinc oxidation products, depending on the length of exposure, solvent washing is effective in removing these potential bond-breakers.

Application of an etch primer, viz. GP PRIME 401 / GP PRIME 203 is recommended before painting.

Stainless Steel and Other Alloys : Solvent wash to remove oil and grease. Brush blasting to provide a suitable anchor pattern is most often recommended depending on the mill finish. Bright, polished stainless steel and other polished metals can be a problem unless an anchor pattern is provided.

C. Concrete and Mansonry

Failure of coating on concrete and masonry is often caused not so much from a failure of adequate surface preparation as from a construction configuration which: allows moisture to wick into the concrete from behind, above or below, and become trapped behind the coated surface. Unless vapour barriers or stops are built-in where concrete is below or on grade or where concrete floors are used as the base for laid-up block or bricks, etc., coating performance will be jeopardized.

Expansion joints are present to accommodate the movement of concrete or masonry structures and should not be coated over as part of the single continuous film which covers the adjacent areas.

Methods : The most efficient method of preparing concrete for coating is by sand blasting. This eliminates form release agents, removes surface laitance, reveals air pockets and creates an anchor pattern.

Where sand blasting is not possible or practical, these general recommendations should be followed :

1. Remove dust, dirt. oil, grease and form release agents. This can usually be accomplished by scrubbing with a strong alkaline detergent.
2. Check for voids which will often be only small openings in the surface with larger voids beneath. Large voids should be filled with latex concrete or cement grout (2 parts cement to 1 part fine sand). Voids left in the surface may result in bridging by the coating and subsequent failure when the trapped air expands.
3. Etch the surface with a solution of 1 part commercial hydrochloric acid in 2 parts water. Allow the acid solution to "work" for 5-10 minutes, then thoroughly flush the surface with water and allow to dry thoroughly. This will neutralise laitance and efflorescence and provide a slight anchor pattern. This treatment is really only practical for floors or horizontal surfaces.
4. Vacuum cleaning of the surface is recommended before painting.

Where sand blasting is not possible, alternative mechanical means are scarifier, power grinder with vacuum attachment are employed.