

CONCRETE SURFACE TREATMENTS FOR RUBBER LINING

CONCRETE PREPARATION

1. The concrete shall be free from the following:
 - a. Air and water pockets.
 - b. Concrete laitance. Laitance is very fine, light powder on the surface.
2. Form oil and concrete curing agents.
3. The concrete shall be prepared as stated on Pages 2 and 3 of this section.
4. We have found that the best adhesion is obtained using Endurabond 2002 A/B as a primer base for blasted and non-blasted concrete surfaces.
5. Then use Endurabond 2001* System. Primer 2001/Tack #3 or the standard 1*2*3 system.
6. The rubber lining is then applied using standard lining techniques.
7. The lining can then be cured using either exhaust steam or by coating with Chemcure for chemical cured rubber linings.

RUBBER LINING CONCRETE TANKS

There are numerous problems inherent in concrete which makes the application of rubber more difficult than lining steel vessels. Some of these are as follows:

1. Concrete is a non-homogeneous material which actually can change with every pour on a large structure - with the weather at time of casting, with any additives to the mix, with the surface against which it is cast, and with the degree of vibration used during placement. Larger surface variations are evident when different casting and finishing methods are used, such as pouring against forms, troweling, and centrifugal casting. All these factors create different surface conditions, each of which influence the application and effectiveness of a lining.
2. All concrete surfaces are alkaline and, where moist, can develop conditions of high pH; sufficiently high so that any cements must be strongly alkali resistant and must remain for good lining performance.
3. Air and water pockets: Well placed and compacted poured concrete is filled with these imperfections even though many methods have been tried to eliminate them.
4. Concrete laitance is a problem which many times is overlooked when a lining is to be applied to concrete. Laitance is a very fine, light powder which is floated to the surface when concrete is cast. The bottom of tanks, which are float finished, often show large quantities; however, all finished concrete surfaces will have it to a lesser degree. Because the laitance has no strength and is non-adherent, any lining applied over it will have poor adhesion.
5. Form oil and concrete curing agents. Many times form oils containing large amounts of wax or soaps are used because they strip easily. These compounds remain on the concrete surface and are difficult to remove. Wherever concrete is to be coated for corrosion protection, forms should be coated with lacquer or other similar material which will remain on the form when it is stripped.

CONCRETE SURFACE PREPARATION

A concrete surface prepared to receive a lining for immersion should be of even color, gray or gray-white. It should show no pits, pockets, holes or sharp changes of surface elevation. Scrubbing with a stiff bristle brush should produce no dusting of dislodged cement or sand. The surface should be etched with a concentration of commercial muriatic acid/water at a ratio of 1:1 or 2:1 by volume. Abrasive blasting can be used to remove laitance from the surface prior to acid washing. The grain of surface to touch should not be rougher than that of 10 mesh sand.

Where concrete has remaining pits, pockets or rough areas, these should be filled with an epoxy to provide a flat smooth surface for rubber application.

RUBBER LINING APPLICATION TO CONCRETE

After proper preparation of the concrete, appropriate primers and adhesives may be applied providing the moisture content has been tested and found it will not interfere with the prime coat bonding.

Having proper concrete preparation, then a chemical cured lining and/or cured lining may be applied under normal installation procedures.

Due to the many variables of concrete, especially moisture content, exhaust steam cured rubber linings are not recommended.

Chemical cured linings require several days or weeks of cure time, whereas cured sheet linings can be service activated when the installation has been completed and quality control inspected to insure seam integrity. Chemical cured lining, being more pliable, can be installed with a lap seam construction vs. the butt/cap strip for cured rubber application.

Chlorobutyl linings generally provide the best properties for chemical service and weather resistance, and Blair Rubber Company has either type to offer - Chemical Cured C623BC or Cured Sheeting (CU76BC).

ADHESIVES SYSTEMS

- I. Chemical Cured Chlorobutyl (C623BC) and Natural (C511BN, C922BN, etc.) linings.
 - a. Prime concrete as recommended.
 - b. Apply Endurabond Primer 2001 and Tack #3 or the standard 1*2*3 system.
 - c. After the lining has been installed, apply at least 2 coats of Chemcure to activate and crosslink the chemical cure lining. Reference Sections 15 and 3. Chemical Curing for more instructions.

- II. Cured Chlorobutyl Sheet CU76BC (BLX76CU) or Cured Neoprene Sheet BLX80CU.
 - a. Prime concrete as recommended for concrete.
 - b. Apply Endurabond Primer 2001 or the standard P-100.
 - c. Use Normac 900R and Activator for adhering cured sheet. Reference Normac specification.
 - d. Cured sheet must be buffed prior to applying the cement to the rubber to provide best adhesion. Reference CU76BC and BLX80 specifications.