

MAINTENANCE AND CARE OF RUBBER LINED EQUIPMENT

To maximize the benefit from rubber lined equipment, the following maintenance and care items are recommended.

Inspect rubber lined vessels on a regular basis. Minor repairs should be made promptly by qualified personnel.

Protect outside of vessels from corrosion by painting.

Protect rubber lining from severe exposure to sunlight and the elements, preferably by storing indoors in a cool, dark environment.

Protect lining from exposure to direct flame and hot metal. All rubber linings will support combustion with the exception of neoprene. Neoprene will not support combustion.

Do not weld rubber lined metals, except as an emergency measure. Sudden changes of temperatures on the outside of vessel can lead to deterioration of the lining and adhesive.

Do not operate at higher than design temperatures.

Protect hard and semi-hard linings from severe mechanical or thermal shock.

Avoid physical damage to the rubber lining. Do not allow metal, tools or other objects to be dropped on the rubber lined surface.

Do not alternate from one service to another without rubber suppliers' approval.

Wash out tanks only when necessary.

Keep tanks filled if possible with regular commodity when storing. If this cannot be done recommendations should be received from the supplier.

Avoid subjecting rubber lining to solvent-type chemicals such as:

- Petroleum distillates such as gasoline, kerosene, oils.
- Coal tar derivatives such as benzol and toluol.
- Chlorinated hydrocarbons such as chlorbenzol, and carbon tetrachloride.

Caution erection crews against damage to exposed rubber. Rubber linings are not structural materials and can be damaged by cables, slings, sharp instruments, impact and heat.

Install tanks on firm basis to avoid rocking or moving in operation.

Allow adequate clearance for periodic inspections.

Avoid excessive bolting pressure on rubber covered flanges. Twenty-five percent (25%) compression of soft rubber gaskets is generally satisfactory.

Maintain adequate air circulation around outside of vessels that are operating at higher than ambient temperatures. Insulation on outside of tanks will not allow dissipation of heat.

STORAGE OF RUBBER LINED VESSELS

The following are general storage guidelines only. Contact your Polycorp representative for more specific recommendations.

- 1) Rubber lined vessels should be stored, between delivery and use, away from sunlight, ozone, heat and seasonal weathering.
- 2) Vessels lined with flexible linings may be stored outdoors, providing the vessels are protected with suitable protective ply covers or tarpaulins and are not subjected to extreme or sudden temperature changes. Provisions should be made to allow air to circulate under the protective cover. Do not store tanks close to ozone producing sources. Rubber lined tanks should also be protected by painting the surface with a silicone emulsion which protects rubber products against effects of ozone, sunlight, weather and oxidation. Rubber lined vessel can also be protected by maintaining a constant nitrogen purge atmosphere in the vessel.
- 3) Hard and semi-hard rubber lined equipment must be protected and stored preferably indoors and should not be subject to cold climatic conditions. Hard rubber becomes somewhat brittle when exposed to cold temperature and there is a danger that thermal stresses may introduce cracking. Tanks that can be stored inside should have outlets, etc., covered and stored away from steam pipes or other high temperature sources.
- 4) Rubber lined vessels that need to be stored for longer periods may be protected by filling with regular commodity or at least partially filling with a 5% to 10% solution of sulfuric acid, sodium carbonate or salt mixture. This will help to keep the lining flexible and keep the air/ozone from deteriorating the lining surface. The liquid contained within the tank should not be permitted to freeze.
- 5) Rubber lined vessels that have been stored should be closely inspected before being put in service.