The following are general characteristics of common materials used for protective linings. These should be used as broad guidelines only. **Always refer to the chemical resistance table contained in Section 4 for recommendations for specific chemicals.** Contact your Polycorp representative for more detail.

Polycorp recommends that customers use the Material Recommendation Request Form in Appendix III to gather the specifics of a particular application. This provides Polycorp Engineers with the ideal amount of information to make optimum lining recommendations.
SOFT NATURAL RUBBER (NR)

Good resistance to most inorganic chemicals with the exception of strong oxidizing agents. They exhibit outstanding abrasion resistance and will expand and contract with thermal variations of the metal substrate.

ADVANTAGES

- Lowest cost of all elastomers
- Ease of application
- Ease of cure
- Ease of repair
- Excellent low temperature properties
- Good general chemical resistance within temperature limitation
- Superior to excellent abrasion and tear resistance

CONSIDERATIONS

- Not oil resistant
- Not flame resistant

TYPES

- Hardness range from 30 to 70 Shore A
- FDA compliant
- Chemical cure - for quick atmospheric cure and repairs

USES

- Chemical storage tanks
- Tank trailers, railroad tank cars
- Tumblers, vibrators, cyclones, fans, pumps, pipe and fittings, etc

DO NOT USE

- In tumblers or vibrators where oily parts may be processed
- For plating tanks

STANDARD PRODUCTS:

HARD NATURAL RUBBER (SEMI AND EBONITE)

Better chemical and heat resistance than soft natural rubber. Wide application in organic and inorganic acids and chlorine gas. Specific grades have excellent permeation resistance and heat resistance.

ADVANTAGES

- Moderate cost
- Ease of application and repair
- Ease of cure
- Excellent chemical and permeation resistance
- Heat resistance up to 200°F (93°C)

CONSIDERATIONS

- Not oil resistant
- Not flame resistant
- Subject to damage by cold weather exposure or sudden extreme temperature changes

TYPES

- Semi-hard
- General purpose Ebonite
- FDA compliant and electroplating tank Ebonite (no graphite)
- Chlorine and hot brine resistant Ebonite (graphite)

USES

- Chemical process tanks, agitators, mixers, pumps, fans, water treatment columns
- Plating tanks (nickel, copper, cadmium)
- Pipe and fittings
- Pickling tanks

DO NOT USE:

- For chrome plating tanks
- For nitric or hydrofluoric acid
- Where abrasion is severe
- Where oil is present

STANDARD PRODUCTS:

1003, 1004, 1006, 1017, 1035, 1036, 1038, 1040, 1042, 1048, 1053, 2017, 3014
TRIFLEX™

Three ply natural rubber lining (soft-hard-soft) that has excellent chemical and moderate abrasion resistance. The semi-hard rubber center layer provides a permeable barrier and the soft cushion allows maximum adhesion to steel.

ADVANTAGES

- Moderate cost
- Ease of application
- Ease of cure
- Ease of repair
- Good flexibility reducing danger of cracking in cold or temperature changes
- Excellent chemical and permeation resistances

CONSIDERATIONS

- Not oil resistant
- Not flame resistant

USES

- Phosphoric acid process equipment and hydrochloric acid storage
- Acid pickling tanks where brick sheathing is used

DO NOT USE

- Where oil or solvents are present
- For tumblers or vibrators

STANDARD PRODUCTS:
1000, 1001, 1008, 1019HT, 1020HT, 1066, 1077HT, 3015, 3016
CHLOROBUTYL /BROMOBUTYL (CIIR/BIIR)

Good resistance to acids and caustic solutions up to 260°F (127°C). Recommended for applications that require ozone, sunlight and aging resistance. Excellent low temperature properties.

ADVANTAGES

- Heat resistance up to 260°F (127°C)
- Good resistance to ozone, sunlight and aging
- Good chemical and permeation resistance

CONSIDERATIONS

- Not oil resistant
- Not flame resistant

USES

- For hydrofluoric acid, super phosphoric acid and sodium hypochlorite storage and process
- Mixed acid wastes
- For sodium hypochlorite storage and transportation

DO NOT USE

- For plating tanks
- Where oil or solvents are present

STANDARD PRODUCTS:

CHLOROPRENE (CR, Neoprene®)
A synthetic elastomer with some physical properties similar to natural rubber. Superior to natural rubber in resistance to heat, ozone, sunlight, weather, flame and oil.

ADVANTAGES
- Oil resistant
- Heat resistant up to 200°F (93°C)
- Flame resistant - will not support combustion
- Good chemical resistance
- Excellent resistance to ozone, sunlight and weather
- Excellent abrasion resistance

CONSIDERATIONS
- A preheated table required for application

TYPES
- General purpose
- High abrasion resistance

USES
- Caustic storage and transportation tanks
- Chemical process and storage tanks
- Mining equipment, such as tumbling barrels and vibrators
- Agitators, pumps, fans, pipe and fittings, other equipment

DO NOT USE
- For plating tanks
- Where solvents are present (halogenated solvents, ketones and lacquer solvents)
- In kerosene or mineral spirits

STANDARD PRODUCTS:
NITRILE (NBR)
Good resistance to greases, oils, petroleum hydrocarbons and other non-polar solvents. Good heat aging resistance up to 239°F (115°C).

ADVANTAGES
- Good resistance to oil, fuel and hydraulic fluids
- Excellent resistance to water
- Good abrasion resistance and tensile strength
- Good low temperature properties
- Heat resistance

CONSIDERATIONS
- A preheated table required for application
- Poor resistance to sunlight and ozone
- Poor weathering qualities
- Poor resistance to highly polar solvents: acetone, MEK

TYPES
- General purpose

USES
- Fuel and oil handling hoses, tanks

DO NOT USE
- Highly polar solvents such as acetone, MEK, ether
- Exposure to sun, weather and ozone

STANDARD PRODUCTS:
2048
STYRENE-BUTADIENE RUBBER (SBR)

Good abrasion resistance, excellent impact strength, very good resilience and a high tensile strength. The operating temperature of SBR lining is up to 160°F (71°C).

ADVANTAGES

- Excellent sliding abrasion resistance
- Excellent tear and wear resistance
- Good resistance to dilute acids, alkalis and alcohols

CONSIDERATIONS

- Not resistant to oil, gasoline, hydrocarbon or oxidizing agents
- Not flame resistant
- Poor resistance to ozone, sunlight and weather

TYPES

- General purpose

USES

- Pulley lagging and sliding abrasion application
- Mining equipment

DO NOT USE

- Where oil, gasoline and hydrocarbons are present

STANDARD PRODUCTS:

9159, 9160, 9169, 55159, 55160
MOR (MODERATE OIL RESISTANCE) RUBBER

Blended rubber lining for general purpose use for abrasion and moderate oil resistance.

ADVANTAGES

- Excellent abrasion resistance
- Resistance to trace quantities of oil, fuel and hydraulic oil
- Operating temperature range from -40°F (-40°C) to 160°F (71°F)
- Ease of application and repair

CONSIDERATIONS

- Not flame resistant
- Poor resistance to ozone, sunlight and weather

TYPES

- General purpose

USES

- Flotation process in mining industry
- General mining applications

STANDARD PRODUCTS:

3049