

CHEMICAL RESISTANCE TABLE

The chemical medias being handled by elastomer tank linings are increasing in number and diversity. To assist in the selection of the proper elastomeric lining for various chemicals, the following table has been prepared. The table is set up with various lining options based on media concentration and temperature. The linings are not listed as to the priority, but generally it can be stated that the lining listed for higher concentrations and temperatures would provide the maximum service performance at reduced concentrations and temperatures. The temperatures are given in both Fahrenheit and Centigrade. The temperatures cited are considered to be normal areas for linings to function properly; however, that's not to imply the lining will not tolerate higher temperatures. Service life of a lining is relative to the temperature and time exposed to an environmental media. The higher the temperature, the shorter the service life. Conversely, the lower the temperature, the longer the service life.

Frequently, other linings will also be acceptable for the media. The chemical list provides the common recommendations, but FDA acceptance, color or method of cure may define the need for a different lining than those listed. Blair Rubber Company has a complete elastomer line for selection, such as special tie gum, numerous chemical cured linings and cured linings for field and repair requirements.

WARNING: Although a lining may be chemically resistant to a given service condition and protect the metal from corrosion, there are other important considerations. The lining may impart an objectionable discoloration, odor or taste to the media being handled. In addition, trace amounts of material may be leached into the solution which can cause problems depending on the intended use. When in doubt, consult with Blair Rubber Company's technical staff for recommendations. Neglecting to do so might result in failure of the lining to fulfill the intended purpose, and may result in possible damage to property.

The user is cautioned that the table is only a guide and should be used as such, as the degree of resistance of an elastomer with a particular fluid depends upon such variables as temperature, velocity of flow, vacuum, duration of exposure and stability of the fluid. When in question, it is always advisable to test the tank lining under actual service conditions, or to consult with the technical department of Blair Rubber Company.

Included is the "Service Condition Information Required" form. Please copy and use it. It is imperative to provide our technical department with complete service conditions in order for us to furnish appropriate lining recommendations. Reference next page.

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***** SERVICE CONDITION INFORMATION REQUIRED *****

In order to better assist you in solving corrosion/abrasion problems, a complete knowledge of all factors involved is necessary. Recommendations can only be based on the information at hand today. With the complex inorganic/organic service becoming more common, the importance of complete information is paramount to reliable recommendations. Please be assured that all information will be held in strict confidence.

COMPANY: _____ DATE: _____
ADDRESS: _____ PHONE NO: _____
_____ FAX NO: _____

SERVICE CONDITION INFORMATION REQUIRED

- 1) Process or Operation: _____

- 2) Equipment Involved: _____

- 3) What chemicals are present and what are their concentration? (Also include any impurities and materials present even though in traces only)

 - a) What inorganic acids, salts, etc., are present? _____

 - b) What organic solvents such as oils and/or chemicals are present? _____

- 4) Temperature: Minimum _____ Maximum _____ Operation _____
- 5) Are there any abrasive materials present and if so what is: _____
 - a) Nature of abrasive material _____

 - b) Percent of solids _____
 - c) Degree of abrasion (What is present service life of equipment?) _____

 - d) Approximate flow velocity _____
 - e) Agitation details _____
 - f) Size of particles _____
- 6) Operation Pressure (psi) or Vacuum (inches of Mercury) _____
- 7) Is slight contamination or discoloration of solution objectionable? _____
- 8) Is equipment a welded fabrication or casting? (if alloy, advise type) _____
- 9) Has this type equipment been rubber lined before? If so, advise of lining and service life obtained: _____
 - a) Gauge _____ Hardness (Shore A) _____ Natural or Synthetic _____
 - b) Compound or Spec. No. _____
 - c) Manufacturer of lining _____
- 10) Have there been rubber failures in this service? _____
 - a) In the Liquid or Vapor phase? _____
 - b) Hardening or Swelling failures? _____
 - c) Caused by abrasion? _____

SUBMITTED BY: _____

SECTION 6: CHEMICAL RESISTANCE TABLE



CHEMICAL	%	°F	°C	RECOMMENDED LINING OPTION 1	RECOMMENDED LINING OPTION 2	CHEMICAL CURE
Abrasion - Sliding				VE616BN	VE612BNE	None
Alkaline Mine Water	Any	180	82	VE713BNE	VE612BNE	None
(Electro)plating Solutions	Any	180	82	VE926BNS	VE822BBS	None
Abrasion - Impingement				VE414RN	VE411TN	None
Acetic Acid	All	140	60	VE822BBS	VE823WNS	C922BN
Acetic Anhydride	100	100	38	VE929BN	VE926BNS	C922BN
Acetone	All	100	38	VE516BC	CC4624	None
Acid Mine Water	All	125	52	VE926BNS	VE616BN	C511BN
Aluminum Chloride	Sat.	175	79	LS582	VE621BC	C623BC
Aluminum Hydroxide	Sat.	190	88	LS582	VE621BC	C623BC
Aluminum Nitrate	Sat.	150	66	CC4624	VE621BC	C623BC
Aluminum Phosphate	Sat.	180	82	VE621BC	LS582	C623BC
Aluminum Sulfate	Sat.	180	82	VE621BC	LS582	C623BC
Aluminum Sulfate	Sat.	150	66	VE621BC	CC4624	C623BC
Ammonium Hydroxide	Sat.	72	22	VE822BBS	VE926BNS	C922BN
Ammonium Nitrate	60	140	60	VE926 BNS	VE621BC	C623BC
Ammonium Phosphate	Sat.	140	60	VE621BC	LS582	C623BC
Ammonium Sulfate	Sat.	190	88	LS582	VE621BC	C623BC
Barium Chloride	Sat.	180	82	VE621BC	LS582	C623BC
Battery (Sulfuric) Acid	30	140	60	VE621BC	LS582	C623BC
Bleach (NaOCl) (Sodium Hypochlorite)	All	140	60	CC4624	None	None
Boric Acid	Sat.	175	79	VE926BNS	VE611BN	C623BC
Brine	Sat.	180	82	VE621BC	VE612BNE	C623BC
Calcium Chloride	Sat.	190	88	VE621BC	LS582	C623BC
Calcium Hydroxide	Sat.	190	88	VE621BC	LS582	C623BC
Calcium Hypochlorite	All	125	52	CC4624	None	None
Caustic Potash	Sat.	190	88	VE621BC	LS582	C623BC
Caustic Soda	50	175	79	VE621BC	LS582	C623BC
Chlorine(water or gas)	Sat.	175	79	VE925BNG	None	C924BNG
Chromic Acid	10	180	82	VE620BH	None	None

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Copper Chloride	Sat.	180	82	VE621BC	LS582	C623BC
Copper Cyanide	Sat.	140	60	VE621BC	LS582	C623BC
Copper Cyanide	Sat.	160	71	VE822BBS	V621BC	C623BC
Copper Sulfate	Sat.	125	52	VE621BC	LS582	C623BC
Deionized/Distilled Water		175	79	VE821BNS	VE824WN	C922BN
Dextrose	Sat.	140	60	VE824WN	VE821BN	C825WN
Diammonium Phosphate	Sat.	150	66	LS582	VE621BC	C623BC
Ethyl Alcohol	100	175	79	VE822BBS	VE929BN	C922BN
Ethylene Glycol	100	175	79	VE516BC	CC4624	C623BC
Ferric(Iron III) Chloride	Sat.	190	88	VE621BC	LS582	C623BC
Ferric(Iron III) Sulfate	Sat.	190	88	VE621BC	LS582	C623BC
Ferrous(Iron II) Chloride	Sat.	190	88	VE621BC	LS582	C623BC
Ferrous(Iron II) Sulfate	Sat.	190	88	VE621BC	LS582	C623BC
Fluorosulfonic Acid	Any			VE822BBS	VE926BNS	None
Formaldehyde	40	125	52	VE516BC	CC4624	None
Formic Acid	Sat	125	52	VE822BBS	CC4624	None
Glucose	Sat	125	52	VE824WN	VE821BN	C825WN
Glycerine	100	125	52	VE927BNI	VE515BNI	None
Gold Chloride	Sat.	175	79	VE621BC	LS582	C623BC
Gypsum Ore	Any	160	71	VE616BN	VE612BNE	None
Gypsum(wet)	Any	180	82	LS582	VE621BC	C623BC
Hexane	100	125	52	VE515BNI	VE927BNI	None
Hydrobromic Acid	4	125	52	VE611BN	VE616BN	C511BN
Hydrochloric Acid	15	175	79	VE621BC	LS582	C623BC
Hydrochloric Acid	Sat.	140	60	PG70	VE411TN	C511BN
Hydrochloric Acid	Sat.	180	82	Hotline II	CC4624	None
Hydrofluoric Acid	70	90	32	VE516BC	CC4624	None
Hydrofluoric Acid	10	125	52	VE621BC	LS582	C623BC
Hydrofluorosilicic Acid(HFS)	Any	180	82	LS582		
Hydrogen Sulfide (Wet)	1	72	22	VE822BBS	VE621B	C623BC
Hypochlorous Acid	10	150	66	VE925BGN	None	C924BNG
Isobutyl Alcohol	100	72	22	VE536BC	CC4624	None
Isopropyl Alcohol	100	72	22	VE536BC	CC4624	None

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Lactic Acid	50	130	54	VE823WNS	VE822BBS	C922BBN
Lead Acetate	Sat.	140	60	VE926BNS	VE621BC	C623BC
Lead Nitrate	Sat.	150	66	VE822BBS	VE621BC	C623BC
Lead Sulfate	Any	175	79	VE621BC	LS582	C623BC
Lime Hydrated	Sat.	180	82	VE621BC	LS582	C623BC
Lime Water	Sat.	180	82	VE621BC	LS582	C623BC
Lye Solution	Sat.	180	82	VE621BC	LS582	C623BC
Magnesium Chloride	Sat.	190	88	VE621BC	LS582	C623BC
Magnesium Hydroxide	Sat.	170	77	VE621BC	LS582	C623BC
Magnesium Nitrate	Sat.	175	79	VE621BC	LS582	C623BC
Magnesium Sulfate	Sat.	190	88	VE621BC	LS582	C623BC
Maleic Acid	25	72	22	VE927BNI	VE515BNI	None
Malic Acid	25	72	22	VE927BNI	VE515BNI	None
Manganese Chloride	Sat.	180	82	VE621BC	LS582	C623BC
Manganese Sulfate	Sat.	180	82	VE621BC	LS582	C623BC
Mercuric Cyanide	Sat.	160	71	VE621BC	LS582	C623BC
Methyl Alcohol	100	72	22	VE822BBS	CC4624	None
Mineral Spirits	100	72	22	VE515BNI	VE927BNI	None
Naphtha	100	72	22	VE515BNI	VE927BNI	None
Natural Gas	100	72	22	VE515BNI	VE927BNI	None
Nickel Acetate	Sat	190	88	VE621BC	LS582	C623BC
Nickel Chloride	Sat.	190	88	VE621BC	LS582	C623BC
Nickel Nitrate	Sat.	190	88	VE621BC	LS582	C623BC
Nickel Sulfate	Sat.	190	88	VE621BC	LS582	C623BC
Nitric Acid	20	90	32	VE516BC	CC4624	None
Oxalic Acid	85	185	85	VE621BC	LS582	C623BC
Petroleum Oils	Any	150	66	VE515BNI	VE927BNI	None
Petroleum Oils	2%	160	71	VE712BN	VE612BNE	None
Phosphoric Acid	Any	190	88	LS582	VE621BC	C623BC
Phosphoric Acid	Any	220	105	HB50HT	Hotline II	None
Phthalic Acid(Powder)		160	71	LS582	VE621BC	C623BC
Potassium Cuprocyanide	Any	150	66	VE621BC	LS582	C623BC
Potassium Cyanide	Sat.	125	52	VE621BC	LS582	C623BC
Potassium Hydroxide(Potash)	Sat.	170	77	VE628BC		

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Potassium Nitrate	Sat.	175	79	VE621BC	LS582	C623BC
Potassium Sulfate	Sat.	150	66	VE621BC	LS582	C623BC
Propyl Alcohol	100	72	22	VE822BBS	CC4624	None
Salicylic Acid	Any	125	52	VE628BC	VE515BNI	None
Sea Water		125	52	VE612BNE	VE628BC	None
Sewge Sludge(Activated)		100	38	VE612BNE	VE713BNE	None
Silver Nitrate	Sat.	175	79	VE621BC	LS582	C623BC
Soda Alum	Sat.	150	66	VE621BC	LS582	
Soda Ash	Any	190	88	VE621BC	LS582	C623BC
Sodium Antimonate	Any	150	66	VE621BC	LS582	C623BC
Sodium Bicarbonate	Sat.	200	93	VE621BC	LS582	C623BC
Sodium Borate	Sat.	190	88	VE621BC	LS582	C623BC
Sodium Carbonate	Sat.	200	93	VE621BC	LS582	C622BC
Sodium Chlorite	Sat.	190	88	VE621BC	LS582	C622BC
Sodium Cyanide	Sat.	200	93	VE621BC	LS52	C623BC
Sodium Hydroxide	50	175	79	VE 621 BC	LS582	C623BC
Sodium Sulfate	Sat.	190	88	VE621BC	LS582	C623BC
Sodium Sulfite	sat.	140	60	VE621BC	LS582	C623BC
Starch Syrup	Any	125	52	VE824WN	VE821BN	C825WN
Sucrose Solution	Any	150	66	VE824WN	VE821BN	C825WN
Sulfonic Acid	50	140	60	VE822BBS	VE926BNS	None
Sulfur Dioxide (FGD Scrubber)	Gas	150	66	LS582	VE628BC	None
Sulfuric Acid	20	180	82	VE621BC	LS582	C623BC
Sulfuric Acid	50	160	71	VE516BC	CC4624	None
Sulfuric Acid	35	200	93	HB50HT	CC4624	None
Sulfurous Acid	Sat.	150	66	VE621BC	LS582	C623BC
Trisodium Phosphate	Sat.	190	88	VE621BC	LS582	C623BC
Zinc Acetate	Sat.	125	52	VE621BC	LS582	C623BC
Zinc Chloride	Sat.	180	82	VE621BC	LS582	C623BC
Zinc Cyanide	Sat.	180	82	VE822BBS	VE621BC	C623BC
Zinc Sulfate	Sat.	190	88	VE621BC	LS582	C623BC