

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.



INNOVATION TO MAKE IT FIRST, QUALITY TO MAKE IT LAST.

Section 6: Chemical Resistance Table Service Condition Information Form

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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: _____
ADDRESS: _____

DATE: _____
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: _____

INNOVATION TO MAKE IT FIRST, QUALITY TO MAKE IT LAST.

Chemical	%	°F	°C	Rubber Lining
Abrasion, Impingement				VE414RN
Sliding				VE616BN VE713BNE
Acetaldehyde	40	150	66	VE925BGN
Acetic Acid	10	140	60	VE822BBS
Vapor		80	27	VE929BN
Glacial	100	80	27	VE929BN
Acetone	100	100	38	VE536BC
Alcohol	100	125	52	VE822BBS
Aluminum	Sat.	150	66	VE929BN
Acetate				
Aluminum Bromide	Sat.	150	66	VE822BBS
Aluminum Fluoride	Sat.	100	38	VE822BBS
Aluminum Nitrate	Sat.	150	66	VE822BBS
Aluminum Phosphate	Sat.	180	82	VE822BBS VE621BC LS582
Aluminum Hydroxide	Sat.	190	88	VE822BBS
Aluminum Nitrate	Sat.	150	66	VE822BBS
Aluminum Phosphate	Sat.	180	82	VE621BC VE536BC
Aluminum Sulfate	5	125	52	VE412BN
Alum	Sat.	140	60	VE621BC
	Sat.	175	79	VE926BNS
	Sat.	200	93	VE822BBS
Ammonium Bifluoride	20	150	66	VE822BBS
Ammonium Carbonate	Sat.	160	71	VE822BBS
Ammonium Hydroxide	Sat.	150	66	VE822BBS
Ammonium Nitrate	60	140	60	VE621BC
	Sat.	150	66	VE822BBS
Ammonium Persulfate	Sat.	140	60	VE822BBS

Chemical	%	°F	°C	Rubber Lining
Ammonium Phosphate	Sat.	140	60	VE822BBS LS582 VE621BC
Ammonium Sulfate	Sat.	175	79	VE713BNE
	Sat.	190	88	VE536BC
Antimony Chloride	Any	175	79	VE822BBS
Barium Chloride	Sat.	190	88	VE621BC
Barium Sulfate	Sat.	190	88	VE713BNE
Barium Sulfide	Sat.	175	79	VE621BC
Battery Acid (sulfuric)	30	140	60	VE621BC
	50	150	66	VE612BNE
Benzene Sulfonic Acid	30	140	60	VE621BC
	50	150	66	VE822BBS
Beryllium Sulfate	Sat.	125	52	VE611BN
Bleach (NaOCl)	15	140	60	CC4624
Borax	Sat.	175	79	VE822BBS
Boric Acid	10	125	52	VE611BN
	Sat.	175	79	VE926BNS
	Sat.	190	88	VE822BBS
Brine	Sat.	180	82	VE621BC LS582 VE822BBS VE610BNE
Calcium Bisulfite	Sat.	150	66	VE822BBS
Calcium Hypochlorite	10	125	52	VE536BC VE530BEP VE516BC,C4624
Chlorides	Any	180	82	VE822BBS LS582 VE621BC
Carbonic Acid	Sat.	125	52	VE412BN
	Sat.	190	88	VE621BC
Caustic Soda	Sat.	140	60	VE611BN
	Sat.	190	88	VE621BC
Calcium Bisulfate	Sat.	150	66	VE822BBS
Calcium Chloride	Sat.	140	60	VE412BN
	Sat.	170	77	VE821BNS
	Sat.	190	88	VE621BC
Calcium Hydroxide	Sat.	140	60	VE412BN
	Sat.	170	77	HOTLINE II
	Sat.	190	88	VE612BC
Calcium Hypochlorite	10	125	52	VE536BC VE530BEP VE516BC C4624

Chemical	%	°F	°C	Rubber Lining
Calcium Nitrate	Sat.	170	77	VE821BNS
Chlorinated Salt Brine	Sat.	160	71	VE925BNG
Chlorine	Sat.	175	79	VE925BNG
Chromic Acid	10	180	82	VE620BH
Citric Acid	Sat.	140	60	VE821BNS
Copper Cyanide	Sat.	160	71	VE621BC
Copper Plating		150	66	VE333TN
Copper Sulfate	Sat.	140	60	VE621BC
		160	71	VE822BBS
		180	82	HB50HT
Cupric Chloride	Sat.	180	82	VE621BC
Deionized Water		180	82	VE821BNS
Dextrose	Sat.	72	22	VE621BC
Diammonium Phosphate		150	66	VE822BBS
Dimethylformamide	Sat.	72	22	VE927BNI
Distilled Water		175	79	VE821BNS
Ethanol	100	125	52	VE822BBS
Ethyl Alcohol	100	125	52	VE822BBS
Ferric or Ferrous (Iron) Sulfate	Sat.	125	52	VE412BN
	Sat.	175	79	VE926BNS
	Sat.	190	88	VE822BBS
Fluoroboric Acid	40	150	66	VE822BBS
Fluorosulfonic Acid	Any	180	82	VE822BBS
Formaldehyde	40	100	38	VE536BC
Formic Acid	Sat.	125	52	VE822BBS
Fumaric Acid	Any	72	22	VE822BBS
Gallic Acid	Sat.	140	60	VE822BBS

Chemical	%	°F	°C	Rubber Lining
Glycerne	100	125	52	VE822BBS
Glycerol	100	125	52	VE822BBS
Gold Chloride	Sat.	175	79	VE621BC
		190	88	VE822BBS
Gypsum	Any	72	22	VE616BN
Hexane	100	72	22	VE515BN
				VE927BNI
Hydrated Lime	Sat.	125	52	VE611BN
Hydraulic Oil (not Skydrol)	100	72	22	VE515BNI
				VE927BNI
Hydrobromic Acid	3-4	152	52	VE611BN
	Sat.	180	82	VE822BBS
Hydrochloric Acid	3-4	125	52	VE611BN
	15	175	79	VE821BNS
	Sat.	72	22	PG70
	Sat.	180	82	VE821BNS
	Sat.	200	93	VE925BNG
Hydrocyanic Acid	25	125	52	VE412BN
	25	150	66	VE821BNS
Hydrofluoric Acid	10	90	32	VE621BC
	70	90	32	VE516BC
(Hydro)fluorosilicic Acid	any	180	82	VE516BC
Hydrogen Sulfide (wet)	1	72	22	VE822BBS
Hypochlorous Acid	10	150	66	VE925BNG
Iron Chloride	Sat.	125	52	VE412BN
	Sat.	175	79	VE822BBS
	Sat.	190	88	VE621BC
Isopropanol	100	125	52	VE822BNS
Lactic Acid	50	130	54	VE823WNS
Lead Nitrate	Sat.	150	66	VE822BBS
Lead Sulfate	Any	175	79	VE621BC
Lime	Sat.	140	60	VE616BN
	Sat.	190	88	VE621BC
				VE713BNE
Magnesium Nitrate	Sat.	125	52	VE611BN
	Sat.	175	79	VE621BC
Manganese Sulfate	Sat.	140	60	VE611BN
	Sat.	190	88	VE621BC

Chemical	%	°F	°C	Rubber Lining
Mercuric Cyanide	Sat.	160	71	VE621BC
Mine Water, Acid	Any	150	66	VE616BN
Mine Water, Alkaline	Any	150	66	VE713BNE
Nitrates	Sat.	170	77	VE822BBS
Nitric Acid	10	150	66	VE621BC LS582
	20	120	49	VE536BC
	40	90	32	VE620BH
Oil (hydrocarbon)	Any	100	90	VE515BNI
Phosphoric Acid	85	185	85	Hotline II
		200	93	LS582 , VE621BC, VE524WC, VE822BC
Pickling HCL	Sat.	150	66	Hotline II
Potash	Sat.	190	88	VE621BC
Potassium (Bi)carbonate	Sat.	140	60	VE611BN
	Sat.	200	93	VE621BC
Potassium Borate	Sat.	175	79	VE822BBS
Salt Water, Sodium Chloride & Sea Water		125	52	VE610BN, VE621BC
		175	79	VE822BBS
Sewage Waste Water		100	38	VE822BBS
		100	38	LS533
Sodium Hydroxide	50	200	93	VE612BNE VE621BC

Chemical	%	°F	°C	Rubber Lining
Sodium Hypochlorite	15	150	66	CC4624
Sugar	Any	150	66	VE824WN
Sulfuric Acid	20	180	82	VE621BC,LS582
	25	160	71	VE822BBS
	35	200	93	HB50HT
	50	150	66	VE536BC
Sulfurous Acid	Sat.	150	66	VE621BC
Tannic Acid	Sat.	130	54	VE822BBS
	Sat.	150	66	VE929BN
Thallium Hydroxide	Sat.	150	66	Hotline II
Tin Perchloride	Sat.	125	52	VE411TN
	Sat.	150	66	HOTLINE II
	Sat.	190	88	VE621BC
Tin Salt	Sat.	125	52	VE412BN
	Sat.	150	66	VE822BBS
	Sat.	190	88	VE621BC
Tri-sodium Phosphate	Sat.	125	52	VE412BN
	Sat.	140	60	VE611BN
	Sat.	175	79	VE822BBS
				HOTLINE II
	Sat.	190	88	VE621BC
Urea	Sat.	120	49	VE611BN
Vinegar	Sat.	100	38	VE824WN
Water		175	79	VE821BNS
Water High Purity		72	22	VE619WN
Zinc Acetate	Sat.	72	22	VE412BN
		125	52	VE621BC
Zinc Cyanide	Sat.	125	52	VE412BN
		150	66	VE822BBS
		180	82	VE621BC
				HOTLINE II
Zinc Sulfate	Sat.	120	49	VE611BN
		170	77	VE822BBS
		200	93	VE621BC



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