# MARCO BILTRIFE CHEMICAL RESISTANCE GUIDE





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### The General Chemical Resistance Of Various Elastomers

This chart is offered as a general guide, including the suitability of various elastomers for service in these chemicals and fluids. The ratings are based for the most part, on published literature of various polymer suppliers, rubber manufacturers, and in some cases, the considered opinion of experienced compounders. We cannot guarantee their accuracy nor assume responsibility for use thereof. Many factors must be considered in using a rubber part in service. The most important as we see them are:

- 1. The temperature of Service: Higher temperatures increase the affect of all chemicals on polymers. The increase varies with the polymer and the chemical. A compound quite suitable at room temperature might fail miserably at elevateed temperature.
- 2. Conditions of Service: A compound that swells badly might still function as a static seal yet fail in any dynamic application.
- 3. The Grade of the Polymer: Many types of polymers are available in different grades that vary greatly in chemical resistance.
- 4. *The Compound Itself*: Compounds designed for other outstanding properties may be poorer in performance in a chemical than one designd especially for fluid resistance.
- 5. The Durometer: In general, the harder a compound the better its resistance.

In light of the above factors, it is always best to test.

	General Purp	ose Non-	Oil Resistant	1		General Pur	pose - Oil Res	istant				Specialty Ela	stomers	
Fluid Chart Key	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Typical WARCO Cmpd No.	40-R-149	60-A-128	60-T-56	60-K-20	60-P-187	60-D-3	60-E-306	60-H-17	_	_	60-S-563	60-S-802	75-F-81	60-D-16
Common Name	Natual Rubber	SBR or BUNA-S	Butyl	EPDM or EP Rubber	Nitrile, NBR or BUNA-N	Epichloro- hydrin	Neoprene	Hypalon	Urethane	Polysulfide	Silicone	Fluoro Silicone	Fluoro Carbon	Polyacrylate
ASTM D 1418	NR	SBR	IIR	EPDM, EPM	NBR	CO, ECO	CR	CSM	AU, EU	Т	VMQ	FVMQ	FKM	ACM
Designation Chemical Name	Polyisoprene	Styrene Butadiene	Isobutyllene Isoprene	Ethylene Propylen Copolymer	Acrylonitrile Butadiene	Epichloro- Hydrin	Chloroprene	Chlorosulfo- nated Polyethylene	Polyeter, or Polyether Urethane	Polysulfide	Polydimethyl- Siloxane	Fluorovinyl Methyl Siloxane	Fluorinated Hydrocarbon	Copolymer of Ethyl and Butyl Acrylate
Generally Resistant To	Most Moderate Chemicals Wet or Dry, Organic Acids, Alcohols Ketones Aldehydes		Animal and Vegetable Fats, Oils, Greases, Ozone, Strong and Oxidizing Chemicals	Animal and Vegetable Oils, Ozone, Strong and Oxidising Chemicals	Many Hydrocarbons, Fats, Oils, Greases, Hydraulic Fluids, Chemicals	Similar to Nitrile with Ozone Resistance	Moderate Chemicals and Acids, Ozone, Oils, Fats, Greases, Many Oils and Solvents	Silimar to Neoprene with Improved Acid Resistance	Ozones, Hydrocarbons, Moderate Chemicals, Fats, Oils, Greases	Ozone, Oils, Solvents, Thinners, Ketones, Esters, Aromatic Hydrocarbons	Moderate or Oxidising Chemicals, Ozone, concentrate d Sodium Hydroxide	Moderate or Oxidizing Chemicals, Ozone, Aromatic Chloronated Solvents, Bases	Halogenated Hydrocarbons, Acids, Animal and	Ozone, Extreme Pressure, Lubricants, Hot Oils, Petrolliums Solvents, Animal and Vegetable Fats
Generally Attacked By	Ozone, Strong Acids, Fats, Oils Greases, Most Hydrocarbons	Similar to Natural Rubber	Petrolium Solvents, Coal Tar Solvents, Aromatic Hydrocarbons	Aromatic Hydrocarbons	Aldehydes,	Ketones, Esters, Aldehydes, Chlorinated and Nitro Hydrocarbons	Strong Oxidizing Acids, Esters, Ketones, Choloronated, Aromatic and Nitro Hydrocarbons	Concentrated Oxidizing Acids, Esters, Ketones, Chlorinated Aromatic and Nitro Hydrocarbons	Concentrated Acids, Esters, Ketones, Chlorinated and Nitro Hydrocarbons	Chloronated Hydrocarbons, Nitro Hydrocarbons,	Many Solvents Oils, Contentrated Acids, Dilute Sodium Hydroxide	Brake Fluids Hydrazine Ketones	Ketones, Low Mole Weight, Ester and Nitro Containing Compounds	Water, Alcohols, Glycols, Alkali, Esters, Aromatic Hydrocarbons, Halogenated Hydrocarbons, Phenol





Important Note: The chemical resistance int  Chemical Effect Rating:		mended - Lit											er Co., LLC	
Chemical Effect Rating:								ber parts pro	•		у арріісатіо	ns		
	C - Modera	ate to severe	effect - Ru	bber parts pe	erhaps still i	useful in limi	ted applicat	tions	U - Not rec	ommended				
	Blank - No	data or insu	ıfficient evid	dence - It sho	ould be note	ed that it is n	ot expected	I that a polyn	ner unrated	would perfo	rm better th	an those th	at are rated.	
Fluid Resistance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	Т	Si	FSi	FKM	ACM
Acetaldehyde	С	U	Α	Α	U		С	С	U	С	Α	U	U	U
Acetamide Acetic Acid, Glacial	C B	C C	A B	A A	A C	U	B C	B C	U U	U B	B B	A C	B C	U U
Acetic Acid, 30%	В	В	В	A	В	В	A	A	C	В	A	В	В	Ü
Acetic Anhydride	В	В	В	В	С	U	Α	Α	U	В	С	U	U	U
Acetone Acetophenone	B C	B U	A A	A A	U U	U U	B U	B U	U U	C U	В	U U	U U	U U
Acetyl Chloride	C	U	^	^	U	U	U	U	U	U		A	A	U
Acetylene	В	В	Α	Α	В		В	В		С	В		Α	
Acrylonitrile Adipic Acid	U	С	U	U	U A		С	С		U	U	U A	U	
Alkazene				U	A		U		В			В	В	
Alum-NH3-Cr-K	Α	Α	Α	Α	Α		Α	Α			Α		U	
Aluminum Acetate Aluminum Chloride	A	В	A	A	B A	B A	B A	A A		U	U B	U	٨	U
Aluminum Chloride  Aluminum Fluoride	A B	A	A	A	A	A	A	A		U	В	A	A	A
Aluminum Nitrate	Α	Α	Α	Α	Α	Α	Α	Α		В				
Aluminum Phosphate Aluminum Sulfate	A A	A B	A A	A A	A A	Α	A A	A A		U	A A	۸	A A	U
Anmonia Anhydrous	A	D	A	A	A		A	A B		U	C	A U	U	U
Ammonia Gas (Cold)	A	Α	Α	Α	A		Α	Α		Α	Α	Α		
Ammonia Gas (Hot)		^	В	В		В	В	В		U	Α	U	U	
Ammonium Carbonate Ammonium Chloride	A A	A A	A A	A A	U A	B A	A A	Α		Α				
Ammonium Hydorxide	U	U	Α	Α	U	В	Α	Α	Α	Ü	Α	В	В	U
Ammonium Nitrate	C	A	A	A	A	Α	В	A	U					Α
Ammonium Nitrite Ammonium Persulfate	A A	A U	A A	A A	A U		A A	A A	U		В			U
Ammonium Phosphate	В	A	Α	Α	A		Α	Α		Α	Α			
Ammonium Sulfate	A	В	A	A	A		A	A		U				U
Amyl Acetate Amyl Alcohol	B B	C B	A A	A A	U B	U A	U A	U A	U U	U B	U U	U A	U B	U U
Amyl Borate	Ü	Ü	U	U	A	,,	A	Α	Ū	A	· ·	,,	A	Ü
Amyl Chloronapthalene	U	U	U	U			U	U	U	С	U	В	A	U
Amyl Napthalene Aniline	U	U	U B	U B	U	U	U C	C	U	C	U	A C	A C	B U
Aniline Dyes	В	В	В	В	Ü	Ü	В	В	Ü	В		В	В	Ü
Aniline Hydrochloride	В	С	В	В	В		U	U	U	В	U	В	В	U
Animal Fats Ansul Ether	U U	U U	B C	B C	A C	Α	B U	B U	A B	U A	B U	A C	A U	A U
Aqua Regia	U	U	U	С			U	С		,,		С	В	
Arochlor(s)	U	U	С	С	С		U		_	U	В	В	Α	U
Arsenic Acid Arsenic Trichloride	В	Α	Α	Α	A A	Α	A A	Α	С	Α	Α	Α	Α	С
Askarel	U	U	U	U	В		Ü	U	U	U	U	В	Α	U
Asphalt Chloride	U	U	U	U	В	A	C	C	В	A	U	В	A	В
Barium Chloride Barium Hydroxide	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A U
Barium Sulfate	A	Α	A	A	A	A	A	A	A	Α	A	A	A	•
Barium Sulfide	A	В	Α	A	A	A	A	A	Α	В	A	A	A	U
Beer Beet Sugar Liquors	A	A A	A A	A A	A	A	A A	A		U	A	A	A	U
Benzene	Ü	Û	Ü	Ü	Û	U	Ü	Û	U	С	Ü	A	A	U
Benzenesulfonic Acid							A	A				В	A	
Benzaldehyde Benzyl Alcohol		U	A B	A B	U U	U U	U A	U B	U	U	U	U B	U A	U
Benzyl Benzoate			В	В	U	U		U				A	A	
Benzyl Chloride	1				U		U					Α	Α	
Benzoic Acid Blast Furnace Gas	U	U			U		U				B A	B B	A A	
Bleach Solutions	U	U	Α	Α	J		C	Α			В	В	A	
Borax	В	В	Α	Α	В		Α	Α	Α		В	В	Α	В
Bordeaux Mixture Boric Acid	В	B A	A	A	^	^	A	A	^	U	В	B A	A	U
Brine	Α	А	A A	A A	A A	Α	A A	A A	Α	U	Α	А	Α	U
Bromine - Anhydrous							U	U		В	С	В	Α	
Bromine Trifluoride	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromine Water Bromobenzene	U	U	U	U	U	U	B U	A U	U	B C	U	B A	A A	U





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				bber parts po				tions I that a polyn		ommended would perfo	orm better th	an those tha	at are rated.	
Fluid Resistance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	T T	Si	FSi	FKM	ACM
Bunker Oil Butadiene	U	U	С	С	A U	U	В	В	B U	Α	В	A B	A B	Α
Butane	U	U	U	U	A	A	A	A	A	Α		A	A	Α
Butter	U	U	В	A	Α	A	В	В	Α	U	A	A	A	A
Butyl Acetate Butyl Acetyl Ricinoleate			B A	B A		U	U B	U B		С	U	U B	U A	U
Butyl Acrylate		U	Û	Ü						В			Û	
Butyl Alcohol	Α	Α	В	В	Α		Α	Α	U	В	В	Α	Α	U
Butyl Amine Butyl Benzoate	U	U	U A	U A	С		U U	U	U	U	В	U A	U A	U
Butyl Carbitol			Ā	A	Α		В	В				^	Ā	
Butyl Cellosolve			Α	Α	С		В	В				U	U	
Butyl Oleate Butyl Stearate	U U	U U	B B	B B	В		U	U		٨		B B	A A	
Butylene	U	U	U	U	В		С	С		A B		В	A	
Butyraldehyde	С	С	В	В	С		С	С		В	С	U	U	U
Calcium Acetate	A U	U	A U	A	В		В	В	٨	U	^	U	U	
Calcium Bisulfite Calcium Chloride	A	A	A	U A	A A	Α	A A	A A	A A	A	A A	A A	A A	Α
Calcium Hydroxide	Α	Α	Α	Α	Α	Α	Α	Α	A	Ü	Α	Α	Α	Ü
Calcium Hypochlorite	U	U	Α	A	C	В	C	Α	•	Α	В	Α	Α	Α
Calcium Nitrate Calcium Sulfide	A B	A B	A A	A A	A B	A B	A A	A A	A A	A U	B B	A A	A A	A U
Cane Sugar Liquors	A	A	A	A	A	A	A	A	Ú	Ü	A	A	A	U
Carbamate	U	U	В	В	С		В	В	U	В		Α	Α	U
Carbitol Carbalia Asid	B U	B U	B B	B B	B U		B C	B C	U	B U	B U	B A	В	U
Carbolic Acid Carbon Bisulfide	U	U	U	U B	C	U	U	U		C	U	A	A A	
Carbon Dioxide	В	В	В	В	A	A	В	A	Α	A	Α	Α	Α	В
Carbonic Acid	A	В	Α	Α	A	A	Α	A	Α	A	A	A	A	Α
Carbon Monoxide  Carbon Tetrachloride	B U	B U	A U	A U	A C	A B	A U	A U	A C	C	A U	B A	A A	
Castor Oil	A	A	В	В	A	A	A	A	A	C	A	A	A	Α
Cellosolve	U	U	В	В				В		В			С	
Cellosolve Acetate Cellulube	U	U	B A	B A	U U		U	U	U	В		U B	U A	U
Chlorine (Dry)	U	U	A	A	U	В	C	В		С		A	A	U
Chlorine (Wet)	U	U	С	С		В	U	С	U	С		В	Α	U
Chlorine Dioxide			С	С	U		U	С				В	A	
Chlorine Trifluoride Chloroacetone	U B	U	U B	U A	U U	U	U B	U B	U	U	U	B U	U	
Chloroacetic Acid			В	В										
Chlorobenzene	U	U	U	U	U	U	U	U	С	U	U	В	A	U
Chlorobromomethane Chlorobutadiene	U	U	B U	B U	U		U U	U			U	B B	B A	
Chlorododecane	U	U	U	U	U		U					Α	Α	
Chloroform	U	U	U	U	U		U	U			U	В	A	
O-Chloronapthalene 1-Chloro 1-Nitro Ethane	U U	U U	U U	U U	U U		U U	U	U	U	U	В	A C	U
Chlorosulfonic Acid	U	U	Ü	Ü	U		Ü	U	U	Ü	3		C	U
Chlorotoluene	U	U	U	U	U		U	U	U			В	Α	
Chrome Plating Solutions Chromic Acid	U U	U	U C	U C	U U		U U	C B	U	U	B C	B C	A A	
Citric Acid	A	A	A	A	A	Α	A	A	A	U	A	A	A	
Cobalt Chloride	Α	Α	Α	Α	Α		Α		U	В	Α	Α		U
Cocoanut Oil Cod Liver Oil	U	U	A A	A A	A A		B B	B B	A A		A B	A A	A	A A
Cod Liver Oil Coke Oven Gas	U	U	А	А	А		В	В	А		B B	A B	A	А
Copper Acetate			Α	Α	В		В	В						
Copper Chloride	A	A	A	A	A		A	A	A		A	A	A	A
Copper Cyanide Copper Sulfate	A B	A B	A A	A	A A		A	A A	A	U	A A	A	A A	A U
Corn Oil	Ü	Ü	В	C	A	Α	В	В	A	Ü	A	A	A	A
Cottonseed Oil	U	U	С	Α	Α	Α	В	В	Α	U	Α	Α	Α	Α
Creosote Cresol	U U	U	U U	U U	B C	U	C C	C C	B U	С	U	A B	A A	Α
Cresylic Acid	U	U	U	U	C		C	C	U			В	A	
Cumene							U	U		В		В	Α	
Cyclohexane	U	U	U	U	Α		U	U	В	Α	U	Α	Α	В





Important Note: The chemical resistance in Chemical Effect Rating:		mended - Lit						ber parts pro						
g-		ate to severe							•		., .,			
								tions I that a polyn		ommended would perfo	orm better th	an those tha	at are rated.	
Fluid Decisions														(4.4)
Fluid Resistance Key	(1) NR IR	(2) SBR BR	(3) IIR	(4) EPM EPDM	(5) NBR	(6) CO ECO	(7) CR	(8) CSM	(9) AU EU	(10) T	(11) Si	(12) FSi	(13) FKM	(14) ACM
Cyclohexanol	В	U	U	U	В		Α	Α		В		Α	Α	
Cyclohexanone			В	В	U	U	U	U		В		U	U	
P-Cymene Decelin	U	U					U	U		B B		B A	A A	
Decalin Decane	U	U			В		U	U	В	В	В	A	A	Α
Denatured Alcohol	A	A	Α	Α	A	Α	A	A	C	Α	A	Α	Α	U
Detergent Solutions	В	В	Α	Α	Α	Α	Α	Α	U		Α	Α	Α	U
Developing Fluids	Α	В	В	В	A		Α	A		Α	A	A U	A U	
Diacetone Diacetone Alcohol	U	U	A A	A A	U	U	Α	Α	B B		Α	U	U	
Dibenzyl Ether	Ü	Ü	В	В	Ü	Ü	В	^	В	В	^			
Dibenzyl Sebecate			В	В			U		В	В	С	С	В	
Dibutyl Amine	U	U	U	U	U		U	U			С	U	U	
Dibutyl Ether Dibutyl Phthalate	U	U	C B	C A	C U	В	C U	C U	B C	A A	U B	C B	C B	С
Dibutyl Sebecate	Ü	Ü	В	В	Ü		Ü	Ü	Ü	В	В	В	В	U
O-Dichlorobenzene	U	U	U	U	U		U	U	U	Α	U	В	Α	
Dichloro-Isopropyl Ether	U	U	С	С	U		U	U	В	A	U	С	С	В
Dicyclohexylamine Diesel Oil	U	U	U	U	C A	Α	В	В	В	C A	U	Α	Α	Α
Diethlamine	В	В	В	В	Ĉ	^	С	С	С	В	В	Û	Û	Û
Diethyl Benezene	U	U	U	U	U		U	U	Ü	В	U	Α	Α	
Diethyl Ether	U	U	U	U	U		С	С	Α	Α	U	С	U	С
Diethylene Glycol Diethyl Sebecate	Α	Α	A B	A B	A U	Α	A U	A U	U	U B	B B	A B	A B	U
Diisobutylene			ь	Ь	В		C	C		A	U	C	A	
Diisopropyl Benzene	U	U	U	U	Ū		Ü	U		В		В	Α	
Diisopropyl Ketone			Α	Α	U		U	U		В		U	U	
Dimethyl Formanida	U	U	U	В	В		U C	С			В	U	U U	
Dimethyl Formamide Dimethyl Phthalate	U	U	В	В	U		U	U		В	В	В	В	
Dinitrotoluene	Ü	Ü	Ū	Ū	Ü		Ü	Ü		, ,		5	C	
Dioctyl Phthalate			В	В		В	U	U		В	С	В	В	
Dioctyl Sebecate	U	U	В	В	U	С	U	U	В	С	С	C C	В	U
Dioxane Dioxolane	U	U	B C	B B	U							C		
Dipentene		Ū	Ū		В					Α		С	Α	
Diphenyl										В		В	Α	
Diphenyl Oxides				A							С	В	A	
Dowtherm Oil Dry Cleaning Fluids	U	U	U	U	С	U	U U	U	В		В	A B	A A	
Epichlorohydrin	U	U	В	В								U	U	
Ethane	U	U	U	U	Α		В	В	В	Α	U	Α	Α	Α
Ethanolamine	В	В	В	В	В	В	В	В	С	В	В	U	U	U
Ethyl Acetate Ethyl Acetoacetate	U	U C	B B	B B	U U	U	C C	С	U	B B	B B	U U	U U	
Ethyl Acrylate	Ŭ		В	В		U	<u> </u>			В	В	U	U	
Ethyl Alcohol	Α	Α	Α	Α	Α	Α	Α	Α	В	Α	Α	Α	Α	U
Ethyl Benzene	U	U	U	U	U	U	U	U	U	С		Α	Α	
Ethyl Benzoate Ethyl Cellosolve			B B	B B						B B		A U	A U	
Ethyl Cellulose	В	В	В	В			В	В	В	U	С	U	U	U
Ethyl Chloride	В	В	A	A	Α	В	В	С	В	Ü	Ü	Α	A	C
Ethyl Chlorocarbonate	U	U					С	С				В	A	
Ethyl Chloroformate Ethyl Ether	U		С	С	С	В	C U	C U	В	Α		B C	A U	U
Ethyl Formate	U	U	В	В	U	U	В	В	ن	Α		A	A	U
Ethyl Mercaptan	Ü	U	U	U	U	U				U			A	
Ethyl Oxalate	Α	Α	Α	Α	U	U	С		Α	Α			Α	
Ethyl Pentochlorobenzene Ethyl Silicate	U B	U B	U A	U	C A	C A	U A	U	С	В		В	A A	
Ethyl Silicate Ethylene	В	В	А	Α	A	А	А	Α				A A	A	
Ethylene Chloride			С	С	- •							C	A	
Ethylene Chlorohydrin	В	В			U		В	В		В	С	В	Α	
Ethylene Diamine	В	В	A	A	A	A	A	A			A	U	U	
Ethylene Dichloride Ethylene Glycol	U A	U A	C A	C A	U A	U A	U A	U A	U B	C	C A	C A	A	U
Ethylene Oxide	,	,,	Ĉ	Ĉ	Û	, ,	Û	Û	J	Ü	Ĉ	Û	Û	Ü
Ethylene Trichloride			С	Ċ	Ü		Ü	Ü			C	C	A	





Chemical Effect Rating:	A - Recom	mended - Lit	tle or mino	effect	B - Minor to	o moderate	effect - Rub	ber parts pro	bably still u	seful in mar	ny applicatio	ns		
	C - Modera	ite to severe	effect - Ru	bber parts pe	erhaps still u	useful in limi	ted applicat	tions	U - Not rec	ommended				
	Blank - No	data or insu	fficient evid	dence - It sho	ould be note	ed that it is n	ot expected	that a polyn	ner unrated	would perfo	orm better th	an those tha	at are rated.	
Fluid Resistance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	Т	Si	FSi	FKM	ACM
Fatty Acids	С	С	U	U	В		В	В		U	С		Α	
Ferric Chloride	A	A	A	A	A	Α	A	A	Α	Ū	A		Α	
Ferric Nitrate	Α	Α	Α	Α	Α	Α	Α	Α		Α	С	Α	Α	Α
Ferric Sulfate	Α	Α	Α	Α	A	Α	Α	Α		Α	В	A	A	Α
Fish Oil Fluoroboric Acid	Α	А	Α	А	A		Α	Α			A	A	A	
Fluorine (Liquid)	, ,	,,	C	C	,,		,,	^		U	U		В	
Fluorobenzene	U	U	U	U	U		U	U			U	В	Α	
Fluorocarbon Oils			A	A										
Fluorolube Fluorinated Cyclic Ethers		U	A A	A A	Α		A	A		Α		В	В	
Fluosilicic Acid	Α		,,	,,	Α		Α	Α						
Formaldehyde			Α	Α	В	В	Α	Α	U				Α	
Formic Acid	A	A	A	A	В	В	A	A	U		В	С	C	
Freon 11 Freon 12	U B	U A	U B	U B	A	A	B A	A	U A	A A	U	B C	A B	
Freon 13	A	A	A	A	A	A	A	A	^	A	J	J	A	
Freon 21	U		U	U	U	В	В	U		U	U		U	
Freon 22	A	A	A	A	U	Α	A	Α	U	Α	U	U	U	
Freon 31 Freon 32	B A	B A	A A	A	U A		A A	B A		B A			C	
Freon 112	Ü	^	Ü	Ü	В		В	В		A			A	
Freon 113	С	В	U	U	Α	Α	Α	Α	В	Α	U	U	В	
Freon 114	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	U	В	В	
Freon 115 Freon 142b	A	A A	A A	A A	A		A	A A		A			B U	
Freon 152a	A	A	A	A	A		A	C		A			U	
Freon 218	Α	Α	Α	Α	Α		Α	A		Α			A	
Freon C316	Α	Α	Α	Α	Α		Α	Α						
Freon C318 Freon 13B1	A	A	A A	A	A A		A A	A	A	A A	U		A	
Freon 114B2	U	C	U	U	В		A	A	А	A	U		В	
Freon 502	A	A	Ü	Ū	В		A	,,		,,			В	
Freon TF	С	В	U	U	Α	Α	Α	Α	Α	Α	U		Α	
Freon T-WD602 Freon TMC	В	B C	A B	B B	B B		B B	B B	A B	A A	C		A	
Freon T-P35	A	A	A	A	A		A	A	A	A	A		A	
Freon TA	Α	Α	Α	Α	Α		Α	Α	Α	Α	Α		С	
Freon TC	U	В	Α	В	Α		Α	Α	Α	Α	U		Α	
Freon MF Freon BF	U	B U	U		A B		C B	U B	С	A				
Fuel Oil	U	U	U	U	A	Α	В	В	В	A	U	Α	Α	Α
Fumaric Acid	A	A	Ü		Α		В	В			В	Α	Α	U
Furan, Furfuran	U	U	С	С	U		U	U		В				
Fufural Gallic Acid	C A	В	B B	B B	U B	U	B B	B B	U	С		А	U A	U
Gasoline	Ü	U	U	U	A	Α	В	В	A	Α	U	A	A	U
Gelatin	Α	A	Α	A	Α	Α	Α	Α	Α	U	Α	Α	Α	U
Glauber's Salt		U	В	В						U		Α	Α	U
Glucose Glue	A	A A	A A	A A	A	A	A A	A	A	U	A	A A	A A	
Glycerin	A	A	A	A	A	A	A	A	A	В	A	A	A	U
Glycols	A	A	Α	A	Α	Α	A	A	В	A	A	A	A	Ü
Green Sulfate Liquor	В	В	Α	Α	В	Α	В	В	Α	U	Α	Α	Α	Α
Halowax Oil	U	U	U	U	U		U	U	Б	Α	U	Α	Α	
n-Hexaldehyde Hexane	U	U U	B U	A U	U A	Α	A B	В	B B	Α	B U	Α	Α	Α
n-Hexene-1	U	U	U	U	В	^	В	В	A	A	U	A	A	A
Hexyl Alcohol	A	A	С	С	Α		В	В	U	A	В	Α	A	Ü
Hydrazine			A	A	В	_	В	В	U		С	_	_	
Hydraulic Oil (Petroleum) Hydrobromic Acid	U A	U C	U A	U A	A U	Α	B A	B A	A U	Α	C U	A C	A A	A U
Hydrochloric Acid (Hot) 37%	U	U	C	C	U	U	U	C	U	U	U	U	A	U
Hydrochloric Acid (Cold) 37%	В	В	A	Α	В	Ü	В	Α	Ü	Ū	В	В	A	Ü
Hydrocyanic Acid	В	В	A	A	В		В	A		U		В	A	U
Hydrofluoric Acid (Conc.) Hot Hydrofluoric Acid (Conc.) Cold	U	U	U B	U B	U U		U B	C A	U U	U U	U	U	B A	U
Hydrofluoric Acid (Conc.) Cold Hydrofluoric Acid - Anhydrous	U	U	В	В	U		В	A	U	U	U	J	A	U
Hydrofluosilicic Acid	A	В	Ā	Ā	В		В	A		U	Ü		Α	





Important Note: The chemical resistance in  Chemical Effect Rating:		mended - Lit						ber parts pro					er Co., EEC	
				bber parts p					<b>U</b> - Not rec		., appca.c			
											uun hattau th	on those th	at are reted	
								that a polyn						
Fluid Resistance Key	(1) NR	(2) SBR	(3) IIR	(4) EPM	(5) NBR	(6) CO	(7) CR	(8) CSM	(9) AU	(10) T	(11) Si	(12) FSi	(13) FKM	(14) ACM
ney	IR	BR	IIIX	EPDM	NBIX	ECO	OIC	CON	EU	•	OI .	1 01	1 130	AOM
Hydrogen Gas	В	В	Α	Α	Α		Α	Α	Α	С	С	С	Α	В
Hydrogen Peroxide (90%) Hydrogen Sulfide (Wet) (Cold)	U U	U U	C A	C A	U U	В	Α	C B		U A	A C	B C	B U	U
Hydrogen Sulfide (Wet) (Hot)	U	U	A	A	U	В	В	С		Ä	C	C	U	U
Hydroquinone	В	В			С					С		В	U	
Hypochlorous Acid lodine Pentafluoride	B U	B U	B U	B U	U	B U	U	U	U	U	U	U	A U	U
lodoform	0	U	A	A	U	O	U	U	O	U	O	U	O	U
Isobutyl Alcohol	Α	В	Α	Α	В		Α	Α	U		Α	В	Α	U
Isooctane Isophorone	U	U	U A	U A	A U	Α	В	В	B B	Α	U	Α	A U	Α
Isopropyl Acetate			A	A	U		U	U	A				U	U
Isopropyl Alcohol	Α	В	Α	Α	В	Α	Α	A		Α	Α	В	A	U
Isopropyl Chloride Isopropyl Ether	U	U U	U U	U U	U B		В	В	В	U		В	A U	С
Kerosene	U	U	U	U	A	A	C	C	B	A B	U	A	A	A
Lacquers	U	U	U	U	U	U	U	U	U	Α	U	U	U	U
Lacquer Solvents	U	U	U	U	U	U	U	U	U	A	U	U	U	U
Lactic Acid Lard	A U	A U	A U	A U	A A	Α	A C	A C	Α	U U	A B	A A	A A	Α
Lavender Oil	U	Ü	U	U	В		С			В		В	A	В
Lead Acetate	A	•	A	A	В	В	В			U	U	•		
Lead Nitrate Lead Sulfamate	A B	A B	A A	A A	A B		A A	A A		U	B B	A A	Α	U
Lime Bleach	A	A	Α	Α	A		В	В		Ü	В	Α	Α	Ü
Lime Sulfur	U	U	A	Α	U		A	A		U	A	A	A	U
Lindol Linoleic Acid			A U	A U	В		C U	С			C B	С	B B	
Linseed Oil	U	U	В	В	A		В	В	В	Α		Α	A	Α
Liquified Petroleum Gas	U	U	U	U	Α	Α	В	В	A	Α	С	В	Α	С
Lubricating Oils (Petroleum) Lye	U B	U B	U A	U A	A B	A	B B	B A	B B	C	U B	A	A B	A U
Magnesium Chloride	A	A	A	A	A	Α	A	A	A	C	A	A	A	
Magnesium Hydroxide	В	В	Α	Α	В	Α	Α	Α	Α	С			Α	U
Magnesium Sulfate Maleic Acid	B B	B B	A C	A C	Α	Α	Α	Α		B B	Α	Α	A A	U
Maleic Anhydride	В	В	Ċ	Ċ									A	
Malic Acid		В	U	U	A		В	В			В	Α	A	U
Mercuric Chloride Mercury	A A	A A	A A	A A	A A	A A	A A	A A	Α				A A	
Mesityl Oxide	Ü	Ü	В	В	Ü	,,	Ü	Ü	, ,	В	U	U	Ü	
Methane	U	U	U	U	A	A	В	В	В	Α	U	В	Α	Α
Methyl Acetate Methyl Acrylate	U	U U	B B	B B	U	U	B B					U U	U U	
Methylacrylic Acid	U	U	В	В			В					U	В	U
Methyl Alcohol	Α	Α	Α	Α	A	В	A	A	U	В	Α	A	C	U
Methyl Bromide Methyl Butyl Ketone	U	U	A	A	B U		U	U		A	В	A U	A U	U
Methyl Cellosolve	U	U	В	В			В	В		••		-	Ü	
Methyl Chloride	U	U	С	С	U		U	U		5	U	В	A	U
Methyl Cyclopentane Methylene Chloride	U U	U U	U U	U U	U		C U	U	U	В		B B	A B	
Methyl Ethyl Ketone	U	U	Α	Α	U	U	U	U	U	Α		U	U	U
Methyl Formate	U	U	В	В	U	U	В	В		В	В			
Methyl Isobutyl Ketone Methyl Methacrylate	U	U U	C U	C U	U	U U	U U	U		B B	C C	U U	U U	U U
Methyl Oleate	U	Ü	В	В	Ü		U					В	A	
Methyl Salicylate			В	В			U			-				
Milk Mineral Oil	A U	A U	A U	A U	A A	Α	A B	A B	U A	B B	A B	A A	A A	U A
Monochlorobenzene	U	U	U	U	Ü	Ü	U	U	-	В	U	В	A	-
Monomethyl Aniline	U	U			U		U	U					В	
Monoethanolamine Monomethylether	B B	B B	B A	B A	U A		U A	U		В	В	U	U	
Monovinyl Acetylene	В	В	A	A	A		В	В		С	В		Α	
Mustard Gas	A		A	A			A	Α			A			
Naptha Napthalene	U U	U U	U	U U	C	Α	C	U	C B	B B	U	B A	A A	В
Napthenic Acid	U	Ü	U	U	В					В		A	A	
					_		_							





Important Note: The chemical resistance in Chemical Effect Rating:		mended - Lit						ber parts pro					or co., EEC	
	C - Modera	ate to severe	effect - Ru	bber parts pe	erhaps still i	useful in limi	ed applicat	tions	<b>U</b> - Not rec	ommended				
	Blank - No	data or insu	ifficient evid	dence - It sho	ould be note	ed that it is n	ot expected	I that a polyn	ner unrated	would perfo	rm better th	an those tha	at are rated.	
Fluid Resistance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	Т	Si	FSi	FKM	ACM
Natural Gas	С	С	U	U	Α	Α	Α	Α	В	В	Α	С	Α	В
Neatsfoot Oil	U	U	В	В	Α					U	В	Α	Α	Α
Neville Acid Nickel Acetate	U A	U	B A	B A	C B		C B			Α		B U	A U	
Nickel Chloride	A	Α	Ā	Ä	A		A	Α		Α	Α	A	A	
Nickel Sulfate	В	В	Α	Α	Α		Α	Α	Α		Α	Α	Α	U
Niter Cake	A	A U	A C	Α	A	U	A C	A		C U	A U	Α	Α	U
Nitric Acid - Conc. Nitric Acid - Dilute	U U	U	В	C B	U U	U	A	B A	U C	U	U B	U B	A A	U U
Nitric Acid - Red Fuming	Ü	Ü	Ū	Ū	Ü	Ü	U	U	Ü	Ü	Ü	Ū	C	Ü
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	U	В	U
Nitrobenzine	В	В	C B	В	U		C	C			U	A U	A U	U
Nitroethane Nitromethane	В	В	В	В	U		C	C			U	U	U	U
Nitrogen	A	A	Α	A	A	Α	Α	A	Α	Α	Α	A	A	A
Nitrogen Tetroxide	U	U	С	С	U		U	U			С	U	U	
Octadecane n-Octane	U U	U	U U	U	Α		В	В	Α	A B	U U	A B	A A	В
n-Octane Octachlorotoluene	U	U	U	U	U		U	U	U	U	U	В	A	U
Octyl Alcohol	В	В	Α	Α	В		Α	Α	U	В	В	В	Α	Ü
Oleic Acid	С	С	В	В	С		С	С	В				В	
Oleum Spirits Olive Oil	U	U	В	В	B A	В	C B	B B	C A		U	В	A A	Α
o-Dichlorobenzene	U	U	В	ь	Û	ь	U	U	^	В	U	В	Ä	^
Oxalic Acid	В	В	Α	Α	В	С	В	В		U	В	Α	Α	
Oxygen - Cold	В	В	A	A	В	В	В	В	A	В	A	A	A	Α
Oxygen - 200 - 400° F. Ozone	U U	U	U B	U A	U U	U A	U B	U A	U A	U A	B A	U U	B A	В
Paint Thinner, Duco	U	U	U	U	<u> </u>		Б			В		В	В	
Palmitic Acid	В	В	В	В	Α	В	В	В	Α	U		Α	Α	
Peanut Oil	U	U	С	С	Α	A	В	В	В	U	A	A	A	Α
Perchloric Acid Perchloroethylene	U	U	B U	B U	С	C B	A U	A U	U	A A	U B	A B	A A	
Petroleum - Below 250	U	U	U	U	A	A	В	В	В	U	В	В	A	Α
Petroleum - Above 250	U	U	U	U	С	В	U	U	U	U	U	U	В	С
Phenol Phenylbenzene	U	U	B U	B U	U		C	C U	U	В	С	B B	A A	
Phenyl Ethyl Ether	U	U	U	U	U		U	U		В		ь	A	
Phenyl Hydrazine	Α	В	С	С	U		С	С					Α	
Phorone			В	В	-		-			С		_		
Phosphoric Acid - 20% Phosphoric Acid - 45%	B U	C U	A B	A B	B U		B B	A B	A A	U U	U	B B	A A	
Phosphorous Trichloride	U	U	A	A	U		U	U	^	Ü	J	A	A	
Pickling Solution			С	С		U		С					В	U
Picric Acid Pinene	B U	B U	B U	B U	B B		A B	B B	B B	В	U U	B B	A	
Pine Oil	U	U	U	U	В		U	U	В	В	U	A	A A	
Piperidine	U	Ü	U	Ü	Ū		Ü	U				U	U	
Plating Solution - Chrome	U	U	Α	Α				С			U		Α	
Plating Solution - Others Polyvinyl Acetate Emulson			A A	A A	Α		В	A B			U		Α	
Potassium Acetate	Α		Ā	Ā	В		В	В				U	U	
Potassium Chloride	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
Potassium Cupro Cyanide	A	A	A	A	A		A	A	A	A	A	A	A	A
Potassium Cyanide Potassium Dichromate	A B	A B	A A	A A	A A	Α	A A	A A	A A	A A	A A	A A	A A	A A
Potassium Hydroxide	В	В	Â	Ä	В	Α	Ä	A	В	В	Ĉ	Ĉ	В	Û
Potassium Nitrate	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
Potassium Sulfate	В	В	A	A	A	Α	A	A	A	В	A	A	A	U
Producer Gas Propane	U U	U	U U	U	A A	Α	B A	B A	A B	U A	B U	B B	A A	B A
Propyl Acetate	U	Ü	В	В	Û	Û	Û	Û		В		Ü	Û	,
n-Propyl Acetate	U	U	Α	Α	U	U				В		U	U	U
Propyl Alcohol	Α	Α	A	A	Α	Α	Α	Α	U	Α	A	A	A	U
Propyl Nitrate Propylene	U	U	B U	B U	U		U	U		В	С	U B	U A	
Propylene Oxide	I	•	В	В	J		Ü	Ü			U	_	.,	
Pyranol	U	U	U	U	Α	U	U	U	В		В	A	A	A
Pydrauls	U	U	В	В	U	U	U	U	U		В	В	Α	U





Important Note: The chemical resistance int													er Co., LLC	
Chemical Effect Rating:		mended - Lit						ber parts pro	,		ny application	ns		
				bber parts pe					U - Not rec					
	Blank - No	data or insu	ufficient evid	dence - It sho	ould be note	ed that it is n	ot expected	d that a polyn	ner unrated	would perfo	rm better th	an those th	at are rated.	
Fluid Resistance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	Т	Si	FSi	FKM	ACM
Pyridine	U	U	В	В	U	U	U	U					U	
Pyroligneous Acid			В	В			В	В		В				
Pyrrole Radiation	C B	C B	U	C B	U B		U B	В	A	U	B C	B U	U	U B
Rapeseed Oil	Ü	Ü	A	A	В	Α	В	В	В	Ü	Ü	A	A	В
Red Oil	U	U	U	U	A		В	В	A	A	U	A	A	A
Sal Ammoniac Salicylic Acid	A A	A B	A A	A A	A A		Α	Α	Α	Α	В	A A	A A	Α
Salt Water	A	A	A	A	A		Α	Α		С		A	A	
Sewage	В	В	В	В	A		Α	Α	U	U	В	Α	Α	U
Silicate Esters Silicone Greases	U A	U A	U A	U A	B A	A	A A	A A	A A	A	C	A	A A	Α
Silicone Oils	A	A	A	A	A	A	A	A	A	Α	C	A	A	A
Silver Nitrate	A	A	A	A	В		A	A	A	В	A	A	A	A
Skydrol 500 Skydrol 7000	U	U	B A	A A	U	U	U U	U U	U U	U	C B	C C	U B	U U
Soap Solutions	В	В	A	A	A	A	A	A	A	U	A	A	A	U
Soda Ash	A	A	A	A	A	Α	A	A		U	Α	A	A	
Sodium Acetate Sodium Bicarbonate	A A	C A	A A	A A	B A	Α	B A	B A	U	U C	Α	U A	U A	U
Sodium Bisulfite	Ä	В	A	Â	A	A	Â	Â		C	A	Â	A	U
Sodium Borate	Α	Α	Α	Α	Α	Α	Α	Α		Α	Α	Α	Α	
Sodium Chloride Sodium Cyanide	A A	A A	A A	A A	A A	A A	A A	A A	Α	C A	A A	A A	A A	
Sodium Hydroxide	A	A	A	A	В	В	A	A	В	Ü	В	В	В	Α
Sodium Hypochlorite	С	С	В	В	В	Α	В	В	U	U	В	В	Α	U
Sodium Metaphosphate Sodium Nitrate	A B	A B	A A	A A	A B	Α	B A	B A			U	Α	Α	
Sodium Perborate	В	В	A	Ä	В	^	В	В		В	В	Α	Α	
Sodium Peroxide	В	В	Α	Α	В		В	В	U		U	Α	Α	U
Sodium Phosphate Sodium Silicate	A	A	A	A	A A		A A	A A	A		U		A A	A
Sodium Sulfate	В	В	A	A	A	Α	A	A	Α	В	Α	Α	A	U
Sodium Thiosulfate	В	В	Α	Α	В		Α	Α	Α	В	Α	Α	Α	U
Soybean Oil Stannic(ous) Chloride	U A	U A	C B	C B	A A	Α	B A	B A	В	U	A B	A A	A A	Α
Steam Under 300° F.	U	U	A	A	U		C	U	U		U	U	U	U
Steam Over 300° F.	U	U	С	В	U	U	U	U	U		U	U	U	U
Stearic Acid Stoddard Solvent	B U	B U	B U	B U	B A	B A	B C	B C	A A	В	A U	Α	Α	Α
Styrene	Ü	Ü	Ü	Ü	Ü	, ,	Ü	Ü	,,	5	Ü	C	В	,,
Sucrose Solution	A	A	A	A	A	Б	A	A		U		Б		
Sulfite Liquors Sulfur	B U	B U	B A	B A	B U	B C	B A	B A		U U	U A	B A	A A	U U
Sulfur Chloride	U	Ü	U	U	C	_	С	В		_		Α	Α	-
Sulfur Dioxide	С	C	В	Α	U	^	C	C		U	Α	В	Α	U
Sulfur Hexafluoride Sulfur Trioxide	В	A U	A B	A B	A U	Α	A U	A U		U	A B	A B	A A	U
Sulfuric Acid (Dilute)	С	С	В	В	U	В	В	Α	В	U	U	С	Α	U
Sulfuric Acid (Concentrated) Sulfuric Acid (20% Oleum)	U	U U	B U	В	U	U	U U	В	U	U U	U	U U	A	U
Sulfuric Acid (20% Oleum) Sulfurous Acid	В	В	В	U B	U B	U	В	U A	U	U	U	U	A A	U
Tannic Acid	A	В	A	A	A		A	A	A	A	В		A	U
Tar, Bituminous	U	U	U	U	В	В	С	С			В	Α	Α	U
Tartaric Acid Terpineol	A U	B U	B C	B C	A B	В	B U	A U	A B	U A	Α	A A	A A	
Tertiary Butyl Alcohol	В	В	В	В	В		В	В	U	В	В	В	A	U
Tertiary Butyl Catechol	U	С	В	В	U		В	В	U	U		A	Α	U
Tertiary Butyl Mercaptan Tetrabromomethane	U	U	U U	U U	U U		U	U	U			В	A A	
Tetrabromometnane Tetrabutyl Titanate	В	B	В	A	В		Α	Α				A	A	
Tetrachloroethylene	U	U	U	U	U				В	U		В	Α	U
Tetraethyl Lead Tetrahydrofuran	U	U U	U B	U B	В		С	С		Α		В	A U	
Tetranydrofuran Tetralin	U	U	n R	n R	U		U	U		A		Α	A	
Thionyl Chloride	U	U	U	U			U						Α	
Titanium Tetrachloride	U	U	U	U	C U	U	U	U	<u> </u>	C U	- 11	B B	A	
Toluene Toluene Diisocyanate	C	C	U A	U A	U	U	U	U	С	U	U	В	Α	
			/ \	/ \			J	J						





Chemical Effect Rating:	A - Recom	mended - Lit	ttle or mino	r effect	B - Minor to	moderate e	effect - Rub	ber parts pro	bably still u	seful in mar	ny applicatio	ns		
	C - Modera	ate to severe	effect - Ru	bber parts pe	erhaps still i	useful in limi	ted applicat	tions	U - Not rec	ommended				
	Blank - No	data or insu	ufficient evid	dence - It sho	ould be note	ed that it is n	ot expected	I that a polyr	ner unrated	would perfo	orm better th	an those tha	at are rated.	
Fluid Resistance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	ĊŔ	CSM	AÚ EU	Ť	Si	FSi	FKM	ACM
Transformer Oil	U	U	U	U	A		В	В			В	A	A	В
Transmission Fluid Type A Triacetin	U B	U C	U A	U A	A B	Α	B B	B B	A U	A B	В	A U	A U	A U
Tributoxy Ethyl Phosphate	В	В	Α	Α	U		U	U	U	Α		В	Α	
Tributyl Phosphate Tributyl Mercaptan	B U	U U	A U	A U	U U		U U	C U	U	Α		U	U A	U
Trichloroethane	U	U	U	U	U		U	Ü	U	U	U	В	A	U
Trichloroacetic Acid	С	В	В	В	В		В	В					С	U
Trichloroethylene Tricresyl Phosphate	U U	U U	U A	U A	C U	U U	U C	U	U C	В	B C	B B	A B	
Triethanol Amine	В	В	В	В	C		A	A	Ü	C		Ū	U	U
Triethyl Aluminum													В	
Triethyl Borane Trinitrotoluene	U	U	U	U	U		В	В		В		В	A B	
Trioctyl Phosphate	U	U	Α	Α	U		U	U		В	С	В	В	U
Triaryl Phosphate Tung Oil	U	U U	A C	A U	U A		C B	C B	B B	B B	С	B B	A A	U
Turbine Oil	U	U	U	U	В	Α	В	В		A		В	A	В
Turpentine	U	U	U	U	Α	А	U	U	U	В	U	В	А	Α
Unsymmetrical Dimethyl Hydrazine (UDMH)			А	А	В		В	А		U	U	U	U	
Varnish	U	U	U	U	В		С	С		A		В	A	
Vegetable Oils	U	U	Α	Α	A	Α	В	В		U	A	Α	Α	Α
Versilube Vinegar	A B	A B	A A	A A	A B	Α	A A	A A		B B	C A	Α	A A	A U
Vinyl Chloride		Ь	A	В	Б		Ü	Ü		Ь	^		A	O
Wagner 21B Fluid		A	В	A	С		A	В		U	С	U	U	
Water Whiskey, Wines	A A	A A	A A	A A	A A	В	A A	A A	A A	U U	A A	A A	A A	U U
White Pine Oil	Û	Û	Û	Û	В		Û	Û	Α	В	^	Ā	Ā	U
White Oil	U	U	U	U	Α		В	В		Α	U	Α	Α	Α
Wood Oil	U	U	U	U	Α		В	В		В	U	В	A	Α
Xylene Xylidenes	U U	U U	U U	U U	U C	U	U U	U U	С	B U	U U	A U	A U	
Zeolites	A	A	A	A	A		A	A				A	A	
Zinc Acetate	Α	С	Α	Α	В		В	В		U	U	U	U	U
Zinc Chloride Zinc Sulfate	A B	A B	A A	A A	A A		A A	A A		C U	Α	A A	A A	U U
SPECIFICATION FLUIDS								- ,,					,,	
MIL-L-644B	С	С	С	С	Α	Α	С	С	С		С			В
MIL-L-2104B	U	U	U	U	A	A	A	A	A	A	С	A	A	A
MIL-L-2105B MIL-G-2108	U	U U	U U	U U	A A	A A	A A	A A	A A	A A	C C	A A	A A	A A
MIL-S-3136B														
Type I Type II	U	U U	U U	U U	A A	A A	B C	C C	B C	A A	U U	A A	A A	В
Type III	U	U	U	U	A	A	C	C	C	A	U	A	A	
Type IV	U	Ü	Ū	U	Α	Α	Α	Α	Α	Α	С	Α	Α	Α
Type V Type VI	U	U U	U U	U U	A A	A A	B B	B B	B B	A A	C C	A A	A A	A A
Type VII	U	U	U	U	A	A	С	С	С	A	U	A	A	A
MIL-L-3150A	U	U	U	U	Α	Α	Α	Α	Α	Α	С	Α	Α	Α
MIL-L-3503 MIL-L-3545B	U	U	U	U	A B	A B	B B	B C	B C	A C	U	A	A	A B
MIL-C-4339C	U	U	U	U	A	A	A	A	A	A	C	A	A	A
MIL-G-4343B	U	U	С	С	В		В	В	A		U	В	Α	Α
MIL-L-5020A MIL-J-5161F	U	U U	U U	U U	A A	A A	B C	C C	B C	A A	U U	A A	A A	В
MIL-C-5545A	U	U	U	U	В	В	В	С	С	C	U	A	A	В
MIL-H-5559A	В	Α	Α	Α	Α	В	В	В	С	С	В	В	В	С
MIL-F-5566 MIL-F-5602	A U	A U	A U	A U	A A	B A	B B	B B	B B	A A	A C	A A	A A	Α
MIL-H-5606B	U	U	U	U	A	A	В	В	В	A	U	A	A	A
MIL-J-5624G														
Grade JP-3 Grade JP-4	U	U U	U U	U U	A A	A A	C C	C C	C C	A A	U U	A A	A A	B B
Grade JP-4 Grade JP-5	U	U	U	U	A	A	C	C	C	A	U	A	A	В
MIL-O-6081 C	Ü	Ü	Ü	Ü	Α	Α	В	В	В	Α	Ċ	Α	Α	A





C - Moderate to severe effect - Rubber parts perhaps still useful in limited applications   U - Not recommended	1) (12) FSi FSi A A A A A A A A A A A A A A A A A A A	(13) FKM  A A A A A A A A A A A A A A A A A A	(14) ACM A A C A B B C
Fluid Resistance  (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (1  Key	1) (12) FSi FSi A A A A A A A A A A A A A A A A A A A	(13) FKM  A A A A A B A	ACM A A C A B B
NR	FSi  A  A  A  A  A  A  A  A  A  A  A  A  A	A A A A A A A A A A A A A A A A A A A	ACM A A C A B B
IR   BR   EPDM   ECO   EU	A A A A A A A A A A A A A A A A A A A	A A A A A A B	A A C A B B
MIL-H-6083C         U         U         U         U         A         A         B         B         B         A         C           MIL-L-6086B         U         U         U         U         U         U         A	A A A A A A B B A A A A	A A A A A B A	A C A B B
MIL-L-6085A         U         U         C         U         A         B         C         C         C         B         C           MIL-L-6086B         U         U         U         U         U         U         A         B         B         B         C         C         C         B         B         C         C         C         B         C         C         C         B         A         C         C         D         C         C         D         C         C         D         C         C         D         C         C         D         C         C         D         C         C         D         C         D         C         D         C         D         C         D         C         D         C         D         C         D	A A A A A A B B A A A A	A A A A A B A	C A B B
MIL-G-687A         U         U         U         U         U         A         B         C         C         B         B           MIL-G-6529C         U         U         U         U         U         B         B         B         C         C         C         U           MIL-F-7024A         U         U         U         U         A         A         B         C         B         A         U           MIL-G-7183A         B         A         A         A         A         B         C         C         C         B         C           MIL-G-7187         U         U         U         U         A         A         A         A         A         A         A         A         A         A         A         A         A         B         C         C         C         B         B         C         C         C         B         B         C         C         C         B         B         C         C         C         B         B         C         C         C         B         B         C         C         C         C         D         D         D <td< th=""><th>A A A B A A A A</th><th>A A A B A</th><th>B B</th></td<>	A A A B A A A A	A A A B A	B B
MIL-G-6529C         U         U         U         U         U         B         B         B         C         C         C         U           MIL-F-7024A         U         U         U         U         U         A         A         B         C         B         A         U           MIL-H-7083A         B         A         A         A         A         B         B         C         C         B         C         C         C         B         C         C         C         B         C         C         C         B         C         C         C         B         C         C         C         B         C         C         C         B         C         C         C         D         C         C         L <t< th=""><th>J A J A B B C A</th><th>А А В А</th><th>В</th></t<>	J A J A B B C A	А А В А	В
MIL-F-7024A         U         U         U         U         A         A         B         C         B         A         U           MIL-H-7083A         B         A         A         A         A         B         B         C         C         B           MIL-G-7118A         U         U         U         U         A         B         C         C         C         B         C           MIL-G-7187         U         U         U         U         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         B         C         C         B         B         C         C         U         U         U         U         A         B         B         C         C         B         B         C         C         U         U         U         U         U         A         B         B         C         C         D         U         U         D         D         D         D         D         D         D         D         D         D         D         D         D	A B B A A C A	A B A	В
MIL-G-7118A         U         U         C         U         A         B         C         C         C         B         C           MIL-G-7187         U         U         U         U         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         A         B         C         C         B         B         C         C         U           MIL-H-7644         B         A         B         B         B         B         B         B         C         C         U	A A	Α	С
MIL-G-7187         U         U         U         U         A         B	) A		С
MIL-H-7644 B A B B B C C U	) A		A
		A	_
MIL-L-7645 UUUUBBBCCCCU		A A	B B
MIL-G-7711A U U U A A A A A A	Α .	A	A
MIL-L-7808F         U         U         C         U         A         B         C         C         C         B         C           MIL-L-7870A         U         U         U         U         A         A         B         B         B         A         C		A A	C A
MIL-C-8188C U U C U A B C C B C		A	C
MIL-A-8243B B A A A A B B B C C E	В В	В	С
MIL-L-8383B         U         U         U         U         A         A         A         A         A         A           MIL-H-8446B         U         U         U         U         B         C         B         U         B         U		A A	A C
MIL-I-8660B A A A A A A A A A A A A A A A A A A A	J A	A	
MIL-1-9000F U U U U A A B C C B U MIL-T-9188B U U A A U U U U U U U		A U	B U
MIL-T-9188B         U         U         A         A         U <th< th=""><td></td><td>A</td><td>C</td></th<>		A	C
MIL-L-10295A U U U U A A B B B A C		Α	Α
MIL-L-10324A         U         U         U         U         A         A         B         B         B         A         C           MIL-G-10924B         U         U         U         U         A         A         B         B         B         A         C		A A	A A
MIL-L-11734B U U C U A B C C C B		A	C
MIL-0-11773 U U C U A B C C B C MIL-P-12098 B A B A B B B C C U		A	C B
MIL-P-12098         B         A         B         A         B         B         B         C         C         U           MIL-H-13862         U         U         U         U         A         A         B         B         B         A         C		A	A
MIL-H-13866A U U U U A A B B B A C		Α	Α
MIL-H-13910B         B         A         B         B         B         C         C         U           MIL-H-13919A         U         U         U         U         A         A         B         B         B         A         G		A A	B A
MIL-L-14107B U U U C A U L	J A	Α	
MIL-L-15017 U U U A A A A A A A A A A A A A A A A		A A	A A
MIL-L-15019C U U U A A A A A A		Ä	A
MIL-L-15719A		A	В
MIL-G-15793 U U C U A B C C C B (MIL-F-16929A U U C U A B C C C B (MIL-F-16929A )		A A	C
MIL-L-16958A U U U U A A B B B A (	) A	Α	Α
MIL-F-17111         U         U         U         U         A         A         B         B         B         A         C           MIL-L-17331D         U         U         U         U         A		A A	A A
MIL-L-17353A U U U U A B C C B B C		Ä	^
MIL-L-17672B U U U U A A A A A A A A A A A A A A A		A	A
MIL-L-18486A         U         U         U         U         A <t< th=""><th></th><th>A A</th><th>A A</th></t<>		A A	A A
MIL-H-19457B U U A A U U U U U U	J C	U	U
MIL-F-19605 U U U U A A C C C A U MIL-L-19701 U U C U A B C C C B (		A A	С
MIL-L-21260 U U U A A A A A A	Α .	Ä	A
MIL-S-21568A         B         A         A         A         A         A         A         A         A         A         B         B         C         C         E           MIL-H-22072         B         A         A         A         B         B         B         C         C         E		A	A
MIL-H-22072         B         A         A         A         B         B         C         C         B           MIL-L-22396         U         U         U         U         A		B A	C A
MIL-L-23699A U U C U A B C C B (	) A	Α	С
MIL-G-23827A         U         U         C         U         A         B         C         C         C         B         C           MIL-G-25013D         B         A         A         A         A         B         B         C         B         U		A A	C B
MIL-F-25172 U U U A A C C C A U		Ä	5
MIL-L-25336B U U C U A B C C C B (		A	С
MIL-F-25524A U U U U A A C C C A U MIL-G-25537A U U U U A A B B B A G		A A	Α
MIL-F-25558B U U U U A A B B B A (	) A	Α	A
MIL-F-25576C U U U U A A C C C A U MIL-H-2598 U U U U A A B B B A G		A A	Α
MIL-H-25598	, A	^	^
MI-F-25656B U U U U A A C C C A U		A	-
MIL-L-25681C         B         A         A         A         A         B         C         B         U           MIL-G-25760A         C         C         C         C         A         B         C         C         B         B	J B J A	A A	B C





Important Note: The chemical resistance information presented has been compiled and edited by the TLARGI Committee. No warranty is expressed or implied. For specific information please call West American Rubber Co., LLC

Chemical Effect Rating:	A - Recom	mended - Lit	tle or mino	r effect	B - Minor to	moderate e	effect - Rub	ber parts pro	bably still u	seful in mar	ny applicatio	ns		
	C - Modera	ate to severe	effect - Ru	bber parts pe	erhaps still u	useful in limi	ted applica	tions	<b>U</b> - Not rec	ommended				
	Blank - No	data or insu	ıfficient evi	dence - It sho	ould be note	d that it is n	ot expected	I that a polyn	ner unrated	would perfo	orm better th	an those tha	at are rated.	
Fluid Resistance Key	(1) NR IR	(2) SBR BR	(3) IIR	(4) EPM EPDM	(5) NBR	(6) CO ECO	(7) CR	(8) CSM	(9) AU EU	(10) T	(11) Si	(12) FSi	(13) FKM	(14) ACM
MIL-L-25968	U	U	С	U	Α	В	С	С	С	В	С	Α	Α	С
MIL-L-26087A	U	U	U	U	Α	Α	Α	Α	Α	Α	С	Α	Α	Α
MIL-G-27343	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	U	Α	Α	
MIL-H-27601A	U	U	U	U	В	В	В	С	С	С	U	Α	Α	В
MIL-G-27617	Б	В	A	A	U			Б.	0	0	U	A	A	0
MIL-I-27686D MIL-L-27694A	B A	A A	A A	A A	A A	B A	B A	В	C A	C A	B U	B A	B A	С
MIL-L-46000A	Ü	U	C	U	A	В	C	A C	C	В	C	A	A	С
MIL-H-46001A	Ü	Ü	Ü	Ü	A	A	A	A	A	A	Ċ	A	A	A
MIL-L-46002	Ü	Ü	Ü	Ü	Α	Α	Α	A	Α	Α	C	Α	Α	
MIL-H-46004	Ü	Ü	Ü	Ü	Α	Α	В	В	В	Α	C	Α	Α	Α
MIL-P-46046A	В	Α	В	Α	В	В	В	В	С	С	U	В	Α	В
MIL-H-81019B	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
MIL-S-81087	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	U	В	Α	
O-A-548a	В	A	A	A	Α	В	В	В	С	С	В	В	В	С
O-T-634b	U	U	U	U	С	С	U	U	U	С	U	В	A	U
P-S-661b P-D-680	U	U	U	U	A	A A	C	C	C	A A	U	A	A	
TT-N-95a	Ü	U	U	U	A	A	C	C	C	A	U	A	A	
TT-N-958 TT-N-97B	U	U	U	U	В	В	C	C	C	A	U	В	A	С
TT-I-735b	A	A	A	A	A	В	В	В	В	A	A	A	A	Ŭ
TT-S-735														
Type I	U	U	U	U	Α	Α	В	С	В	Α	U	Α	Α	В
Type II	U	U	U	U	Α	Α	С	С	С	Α	U	Α	Α	
Type III	U	U	U	U	Α	Α	С	С	С	Α	U	Α	Α	
Type IV	U	U	U	U	Α	Α	Α	Α	Α	Α	С	Α	Α	Α
Type V	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
Type VI	U	U	U	U	A	A	В	В	В	A	С	A	A	A
Type VII TT-T-656b	U	U U	U A	U A	A U	A U	C U	C U	C U	A U	U U	A C	A U	U
VV-B-680	В	A	В	A	В	В	В	В	C	C	U	В	A	В
VV-G-632	U	Ú	U	Ü	A	A	A	A	A	A	C	A	Ā	A
VV-G-671c	Ü	Ü	Ü	Ü	A	A	A	A	A	A	C	A	A	A
VV-H-910	В	A	В	A	В	В	В	В	C	С	U	В	A	В
VV-I-530a	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
VV-K-211d	U	U	U	U	Α	Α	С	С	С	Α	U	Α	Α	
VV-K-220a	U	U	U	U	Α	Α	В	С	В	Α	U	Α	Α	В
VV-L-751b	U	U	U	U	В	В	В	С	С	С	U	Α	Α	В
VV-L-800	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
VV-L-820b	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
VV-L-825a	U	U	U		Α	^	^	^		^	0	^	^	^
Type I	U	U	U	U U	A	A A	A A	A A	A A	A A	C	A A	A A	A A
Type III	U	U	U	U	В	В	В	C	C	C	U	A	A	В
VV-O-526	Ü	U	U	U	A	A	A	A	A	A	C	Ä	Ä	A
VV-P-216a	Ü	Ü	Ü	Ü	A	A	В	В	В	A	Ċ	A	A	A
VV-P-236	U	Ü	Ü	Ü	В	В	В	C	C	С	Ü	Α	Α	В
51-F-23	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
ASTM Method D-471														
1.	U	U	U	U	Α	Α	Α	Α	Α	Α	С	Α	Α	Α
2.	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α
3.	U	U	U	U	Α	Α	В	В	В	Α	С	Α	Α	Α

Note: Our laboratory is in constant touch with the latest developments on all of the elastomers shown. In addition, it is constantly experimenting with new elastomers as they are developed. For specific up to date information for your particular needs contact West American Rubber Company, LLC.