

Polymer & elastomer chemical resistance chart for high-performance Jamesbury™ ball and butterfly valves

The following tables show the expected compatibility of Jamesbury seat and seal materials when installed in an atmosphere containing the listed chemicals. These ratings are not a guarantee of performance. Specific conditions or a mixture of reagents may produce different results.

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Other media characteristics that will influence the choice of a particular material include temperature, pressure, velocity, and abrasiveness, etc. Therefore, these ratings should not be interpreted as a guarantee of performance but rather as one of the bases for material selection.

Specific conditions, or a mixture of reagents may produce varied results. User preference, trade practice, cost, and experience should also be considered in the final choice.

Pressure/temperature ratings of seat materials in specific valves are provided in the applicable valve bulletin. Not all seat materials are available for all valves.

Environment	Material																
	XTREME™	PTFE	Filled PTFE	Tefzel®	Kel F®	FEP	PFA	PEEK®	Nylon	Delrin®	UHMWPE	Polyimide	Buna N®	Viton®	Neoprene	EPDM	Graphite
Acetaldehyde	A	A	A	A	A	A	A	A	A	A¹	C		D	D	C	A	A
Acetamide	A	A	A	A	A	A	A	A	A	B	A		A	B	B	A	A
Acetate solvent	A	A	A		A	A	A		A		A		C	D	D	A	A
Acetic Acid	A	A	A	A	A	A	A	B	D	C	A²	D	C³	B	C	A	A
Acetic Acid 20%	A	A	A	A	A	A	A	A	B	B	A	D	B	B	A	A	A
Acetic Acid 80%	A	A	A	A	A	A	A	B	D	C	A²	D	C³	B	C	A	A
Acetic Acid Glacial	A	A	A	A	A²	A	A	A³	D	C	A²	D	C	D	D	B	A
Acetic Anhydride	A	A	A	A	A	A	A	A	A¹	D	D		D	D	A	B	A
Acetone	A	A	A	A	A	A	A	A³	A	C	B¹		D	D	C	A	A
Acetonitrile	A	A	A	A	A	A	A	A									
Acetophenone	A	A	A	A	A	A	A	B³					D	D	D	A	
Acetyl Chloride (dry)	A	A	A	A²	A	A	A	A	D	D	D		D	A	D	D	
Acetylene	A	A	A	A	A	A	A	A	A		A		B	A	B	A	
Acetylene Tetrabromide	A	A	A	A		A	A						D	A	B	A	

Legend

A = No Effect — Excellent
 B = Minor Effect — Good
 C = Moderate Effect — Fair
 D = Severe Effect — Not recommended
 * = Consult Valmet if conditions within the valve permit polymerization.

1 = Satisfactory to 72°F (24°C)
 2 = Satisfactory to 120°F (49°C)
 3 = Satisfactory to 275°F (135°C)

An empty box indicates that no data was available at time of printing.

† = May ignite
 a = Barrier™ Seat construction required
 ** Some decrease in wear resistance should be expected due to corrosion of proprietary filler. However, cycle life is expected to be better than virgin PTFE in the same application.

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Acetylene Tetrachloride	A	A	A	A		A	A				A						
Acrylonitrile	A	A	A	A		A	A	A	A		A		D	D	C	D	A
Adipic Acid	A	A	A	A		A	A	A									
Air	A	A	A	A	A	A	A	A	A	A	A						
Alcohols:																	
Allyl	A	A	A	A	A	A	A	A			A						
Amyl	A	A	A	A	A	A	A		A ¹	A	B ²		B	B	A	A	B
Benzyl	A	A	A	A	A	A	A		D	A	D		D	A	C	B	A
Butyl	A	A	A	A		A	A		A	A	A		A	A	A	B	
Diacetone	A	A	A	A		A	A		A	A	B ¹		D	D	D	A	
Ethyl	A	A	A	A		A	A	A	A	B	B		C	A	A	A	A
Hexyl	A	A	A	A		A	A		A	A	A		A	C	A	C	
Isobutyl	A ²	A ²	A ²			A ²	A ²		A ¹	A	A ²		B	A	A	A	
Isopropyl	A	A	A			A ²	A ²		B ¹	A	A ²		B	A	B	A	A
Methyl	A	A	A	A	A ¹	A	A	A	A	C	A ¹		A	B ²	A	A	A
Octyl	A	A	A						A	A	A		B	B	B	A	
Propyl	A	A	A			A	A		B	A	A ²		A	A	A	A	A
Allyl Chloride	A	A	A	A	A	A	A	B ³									
Aluminum Ammonium Sulfate	A	A	A	A	A	A	A										
Aluminum Chloride	A	A	A	A	A	A	A	D	D		B ²		A	A	A	A	A
Aluminum Chloride 20%	A	A	A	A	A	A	A	A	D	C	B ²		A	A	A	A	A
Aluminum Fluoride	A	A	A	A		A	A		A ¹	C	A ²		A	A	A	A	A
Aluminum Hydroxide	B ^{**}	A	D	A	A ¹	A	A		A ¹	B	A ²		A	A	A	A	A
Aluminum Nitrate	A	A	A	A	A	A	A						A	A	A	A	
Aluminum Oxychloride	A	A	A	A	A	A	A										
Aluminum Potassium Sulfate 10%	A	A	A	A	A	A	A		D	C	A ²		A	A	A	A	A
Aluminum Potassium Sulfate 100%	A	A	A	A	A	A	A		D	C	A ²		A	A	A	A	A
Aluminum Sulfate	A	A	A		A	A	A	A ¹	A ²	C	A ²		A	A	A	A	A
Amines	A	A	A		A	A ²	A ²		D	D	C ¹		D	D	B	B	A
Amino Acids (Water)	A	A	A	A	A	A	A										
Ammonia 10%	A	A	A	A	A	A	A	A	A	D	A		A	D	A	A	A
Ammonia Anhydrous	A	A	A	A	A	A	A	A	A ¹	D	A ¹		B	D	C	A	A
Ammonia Liquids	A	A	A	A	A	A	A	A	B ¹	D	A ¹		C	D	A	A	A
Ammonia Nitrate	A	A	A			A	A		D	C			C	D	C	A	
Ammonium Bifluoride	A	A	A	A		A	A			D	A ²		A	A	A	A ²	A
Ammonium Bromide(50%)	A	A	A	A		A	A										
Ammonium Carbonate (10%)	A	A	A	A		A	A	A	A	D	B ²		D		A	A	
Ammonium Carbonate	A	A	A	A		A	A		A	D	B ²		D		A	A	A
Ammonium Casenite		A		A		A	A			D					A		
Ammonium Chloride	A	A	A	A	A	A	A	A	C	B	A ²		B	A	A	A	A
Ammonium Dichromate	A	A	A	A	A	A	A										
Ammonium Fluoride	A	A	A	A		A	A										
Ammonium Hydroxide	B ^{**}	A	D	A	A	A	A	A	A	C ¹	A ¹		D	B	A	A	A
Ammonium Nitrate	A	A	A	A	A	A	A		B	C	A ¹		A	A	B	A	A

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Ammonium Oxalate	A	A	A	A	A	A	A			B			A		A		
Ammonium Perchlorate	A	A	A	A		A	A										
Ammonium Persulphate	A¹	A¹	A¹	A	A	A¹	A¹		C¹	D	A²		D	A	A	A	A
Ammonium Phosphate, Dibasic	A²	A²		A	A	A²	A²		C¹	B	A²		A	A	A	A	A
Ammonium Phosphate, Monobasic	A	A		A		A	A		B	B	A		A	A	A	A	
Ammonium Phosphate, Tribasic	A	A		A		A	A		B	B	C		A	A	A	A	
Ammonium Sulphate	A	A	A	A	A	A	A	A²	A¹		A¹		A	A	A	A	A
Ammonium Sulphide	A	A	A	A	A	A	A						A	D	A	A	
Ammonium Thio-Sulphate	A	A	A	A	A	A	A			B	A		A		A		
Ammonium Thiocyanate	A	A	A	A	A	A	A										
Amyl Chloride	A	A	A	A	A	A	A		C¹	A	D			B¹	D	D	A
Amyl-Acetate	A	A	A	A	A¹	A	A	A	C²	A	A¹		D	D	D	A	A
Amyl-Alcohol	A	A	A	A	A	A	A	A	A¹	A	B²		B	B	A	A	A
Aniline	A	A	A	A	A²	A	A	B	C¹	A¹	B²		D	C	D	B	A
Aniline Hydrochloride (10%)	A	A	A	A		A	A						B	B	D	B	
Anti-Freeze	A	A	A	A		A	A	A	D	D			A	A	C		
Antimony Trichloride	A	A	A	A	A	A	A	A	D		A¹			A²		B¹	
Antraquinone	A	A	A	A		A	A										
Antraquinone-Sulfonic Acid	A	A	A	A		A	A										
Aqua Regia (80% HCl, 20% HNO3)	A	A	A	A	A	A	A	D	D	D	D¹		D	B	D	C	D
Arochlor 1248	A	A	A		A¹	A	A		A		C¹		C	A	D	B	
Aromatic Hydrocarbons	A		A					D		A	C		C	A	D	D	
Arsenic Acid	A	A	A	A		A	A		C¹	D	B²		A²	A²	A	A²	A
Asphalt	A	A	A		A	A³	A³		A	A	A¹		B	A	C	D	A
Barium Carbonate	A	A	A	A	A	A	A		A¹	A	B²		A²	A		A	A
Barium Chloride (10%)	A	A	A	A	A	A	A	A	A²	A	A¹		A	A	A	A	A
Barium Chloride	A	A	A	A	A	A	A		A²	A	A¹		A	A	A	A	A
Barium Cyanide	A	A	A			A¹	A¹			B	B		C	A	A	A	
Barium Hydroxide	B**	A	D	A	A	A	A		A	D	B²		A	A	A	A	A
Barium Nitrate	A¹	A¹	A¹		A	A¹	A¹		A¹	A	B²		A²	A	A	A	A
Barium Sulfate (10%)	A	A	A	A	A	A	A	A	A¹	A	B²		A	A	A	A	A
Barium Sulfate	A	A	A	A	A	A	A		A¹	A	B²		A	A	A	A	A
Barium Sulfide	A	A	A	A		A	A	A	A¹	A	B²		A	A	A	A	A
Battery Acid	A	A	A	A	A	A	A										
Beer	A	A	A	A	A	A	A		A¹	B	A¹		A	A	A	A	A
Beet Sugar Liquids	A	A	A	A	A	A¹	A¹		A	B	A¹		A	A	A	A	A
Benzaldehyde	A	A	A	A	A	A¹	A	B³	A	A	A²		D	D	D	A	A
Benzene	A	A	A	A	B	A	A	B³	A	A¹	C¹		D	A	D	D	A

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	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Benzene-Sulfonic Acid	A	A	A	A		A	A	C ³					D	A	D	D	
Benzoic Acid	A ²	A ²	A ²	A	A	A ²	A ²	A	C	B	B ²		D	A	D	D	A
Benzol	A	A	A		A	A	A		D	A	C ¹		D	A	B	B	
Benzoyl Chloride	A	A	A	A		A	A	D			B						
Benzyl Alcohol	A	A	A	A	A	A	A				A			A		B	
Benzyl Chloride	A	A	A	A	A	A	A	C					D	A	D	D	
Bismuth Carbonate	A	A	A	A	A	A	A										
Black Liquor	B ^{**}	A	D	A		A	A										
Bleach	A	A	A	A		A	A						C	A	B	A	
Borax (Sodium Borate)	A	A	A	A	A	A	A		A	A	A ²		D	A	C	A	A
Boric Acid (10%)	A	A	A	A	A	A	A	A	B	A	A ²		A	A	A	A	A
Boric Acid	A	A	A	A	A	A	A		B	A	A ²		A	A	A	A	A
Brewery Slop	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Brine	A	A	A	A	A	A	A	A		A	A	D					
Bromic Acid	A	A	A	A	A	A	A										
Bromine	A	A	A	A	A	A	A		D	D	D		D	A	D	D	D
Bromine Water (10%)	A	A	A	A	A	A	A										
Bromoform	A	A	A	A		A	A										
Butadiene	A [*]	A [*]	A [*]	A	A	A	A	A	A ¹	A	D		D	B	B	C	A
Butane	A	A	A	A	A	A	A	A	A ²	A	C ¹		A	A	A	D	A
Butanediol	A	A	A	A		A	A										
Butanol (Butyl Alcohol)	A ²	A ²	A ²		A ¹	A ²	A ²	A	B ¹	A	A ¹		A	A	A	B	A
Butter	A	A	A	A		A	A	A		A			A	A	B	A	
Buttermilk	A	A	A	A	A	A	A		B ¹	A	A ¹		A	A	A		A
Butylene	A	A	A	A	B ¹	A	A		B ¹	A	B ¹		B	A	C	D	A
Butyl Acetate	A	A	A		A ¹	A	A	A	A	A	A ¹		D	D	D	B	A
Butyl Acrylate	A	A	A	A		A	A										
n-Butyl Alcohol	A	A	A	A		A	A						D	D	D	D	
sec-Butyl Alcohol	A	A	A	A	A	A	A						A	A	A	B	
tert-Butyl Alcohol	A	A	A	A	A	A	A						A	A	A	B	
n-Butylamine	A	A	A	A ²	A	A	A	A					A	A	A	B	
sec-Butylamine	A	A	A	A ²	A	A	A	A					C	D	D	B	
tert-Butylamine	A	A	A	A ²	A	A	A	A					C	D	D	B	
di-n-Butylamine	A	A	A	A		A	A	A					C	D	D	B	
tri-n-Butylamine	A	A	A	A		A	A	A					C	D	D	B	
Butyl Bromide	A	A	A	A		A	A										
Butyl Chloride	A	A	A	A		A	A										
Butyl Phenol	A	A	A	A		A	A										
Butyl Phthalate	A	A	A	A ²		A	A										
Butyraldehyde	A	A	A	A		A	A						D	D	D	B	
Butyric Acid	A ²	A ²	A ²	A	A	A ²	A ¹		B ¹	C	D		D	B ¹	D	B	A
n-Butyl Mercaptan	A	A	A	A		A	A		D								
Calcium Bisulfate	A	A	A	A		A	A								A		
Calcium Bisulfide	A	A	A	A	A	A	A		A	D			A ¹	A	A	C	

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Calcium Bisulfite	A	A	A	A	A	A	A		A	D	A ¹		A	A	A	D	A
Calcium Carbonate	A	A	A	A		A	A	A	A	A	B ²		A	A	A	A	A
Calcium Chlorate	A	A	A	A		A	A	A			A		C	A		A	
Calcium Chloride	A	A	A	A	A	A	A	A	A ¹	D	B ²		A	A	A	A	A
Calcium Hydroxide	B ^{2*}	A	D	A	A	A	A	A	A ²	D	B ²		A	A	A	A	A
Calcium Hypochlorite	A	A	A	A	B ¹	A	A	B	C ¹	D	B ²		C ¹	A	C	B ¹	A
Calcium Nitrate	A	A	A	A		A	A				A		A	A	A	A	
Calcium Oxide	A	A	A	A		A	A										
Calcium Sulfate	A	A	A	A	A	A	A		D	D	B ²		A ²	A	C	A	A
Calcium Sulfide	A	A	A	A		A	A						A	A	A	A	
Calgon	A	A	A	A		A	A		A	B			A	A	A	A	
Cane Juice	A	A	A	A		A	A	A	A	A			A	A	A	A	
Carbolic Acid (see Phenol)	A	A	A	A	B	A	A	D	C	D	A		D	A	D	B	A
Carbon Bisulfide	A	A	A	A		A	A		A	A			C	A	D	D	
Carbon Dioxide	A	A	A	A	A	A	A	A	A ¹	A	C ¹		A	B	B	B	A
Carbon Dioxide (dry)	A	A	A	A	A	A	A	A	A ¹	A	C ¹		A	B	B	B	A
Carbon Dioxide (wet)	A	A	A	A	A	A	A	A	A ¹	A	C ¹		A	B	B	B	A
Carbon Disulfide	A	A	A	A ²	A	A	A	B	B ¹	A ¹	C ¹		D	A ¹	D	D	A
Carbon Monoxide	A	A	A	A	A	A	A	A	A ¹	A	B ²		A	A	A	A	A
Carbon Tetrachloride	A	A	A	A	A ¹	A	A	A	B	B ¹	B ¹		C	A	D	D	A
Carbonated Water	A	A	A	A		A	A	A	A	A	A		A	A	A		
Carbonic Acid (10%)	A	A	A	A	A	A	A	A	A ¹	B ¹	A		B	A	A	A	A
Carbonic Acid	A	A	A	A	A	A	A	A ¹	A ¹	B ¹	A		B	A	A	A	A
Castor Oil	A	A	A	A	A	A	A	A	A		A		A	A	A	B	
Catsup	A	A	A	A	A	A	A	A	A	B	A		A	A	C	C	
Caustic Potash (10% & 50%)	B ^{2*}	A	D	A		A	A				A						
Caustic Soda (See Sodium Hydroxide)																	
Cellulose	A	A	A	A		A	A						D	D	D	B	
Chloral Hydrate	A	A	A	A		A	A	A ³			A						
Chloroacetic Acid	A	A	A	A	A ²	A	A		D	D	A		B	D	D	B	A
Chloric Acid	A	A	A	A	A	A	A		D	D							D
Chlorinated Brine	A	A	A	A	A	A	A										
Chlorinated Glue	A	A	A	A	A	A	A						C	A	D	B	
Chlorinated Phenol	A	A	A	A	A	A	A										
Chlorine Anhydrous Liquid	A	A	A		B ²	A	A	D	D	A ¹	B ²		D	A	D	C	A
Chlorine Dioxide	A	A	A	A	A	A	A		D				D	B	D	C	
Chlorine, Dry	A	A	A	A	D	A	A	D	D	D	B		D	A	C	A	A
Chlorine Water	A	A	A	A	A	A	A	D	C ¹	D	B ¹		D	A	D	C	A

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Chloroacetic Acid (50% Water)	A	A	A	A	A	A	A	C									
Chlorobenzene (Mono)	A	A	A	A	A ²		A	C	B ¹	A ¹	C ¹		D	A	D	D	A
Chlorobenzyl Chloride	A	A	A	A ²													
Chloroform	A ¹	A ¹	A ¹	A	B ¹	A ¹	A ¹	A ¹	B	B ¹	C ¹		D	A	D	D	A
Chlorohydrin (Liquid)	A	A	A	A ²													
Chlorosulfonic Acid	A	A	A	A ¹	A ²	A	A		D	D	D		D	C	D	D	A
Chocolate Syrup	A	A	A	A		A	A	A	A	A			A	A	A		
Chromic Acid 5%	A	A	A	A	A	A	A	A	D	B ¹	A		D	A	D	A	A
Chromic Acid 10%	A	A	A	A	A	A	A	A	D	B ¹	A ¹		D	B	D	C	A
Chromic Acid 30%	A	A	A	A	A	A	A	A	D	C	A ¹		D	A	D	B	A
Chromic Acid 50%	A	A	A	A	A ²	A	A		D	D	A ²		D	A	D	B	A ¹
Chromic Chloride	A	A	A	A	A	A	A				A						
Cider	A	A	A	A	A	A	A	A	A	B	A		A	A	A		
Citric Acid	A	A	A	A	A ²	A	A	A	A ¹	B ¹	A ¹		A	A	A	A	A
Citric Oils	A	A	A	A		A	A	A		B			A	A	D		
Clorox (bleach)	A	A	A	A	D	A	A		A	D			B	A	B	B	
Coal Gas	A	A	A	A	A	A	A		C				D	A	D	D	
Coffee	A	A	A	A	A	A	A	A	A	A			A	A	A	A	
Copper Chloride (10%)	A	A	A	A		A	A	A	D	B	B		A	A	A	A	
Copper Chloride	A	A	A	A		A	A		A	B	B		A	A	A	A	
Copper Cyanide	A	A	A	A		A	A		A ¹	B	B ²		A	A	A	A	A
Copper Fluoborate	A	A	A	A		A	A			B			B	A	A		
Copper Fluoride	A	A	A	A		A	A										
Copper Nitrate	A	A	A	A	A	A	A		D	D	B ²		A	A	A		A
Copper Sulfate 5%	A	A	A	A	A	A	A	A	A	D	B ²		A	A	A	A	A
Copper Sulfate	A	A	A	A	A	A	A	A	A				A	A	A	A	
Cream	A	A	A	A		A	A	A	A	A			A	A	C		
Cresols	A	A	A	A	A ¹		A	C	D	D	C ¹		D	A	D	D	A
Cresylic Acid	A	A	A	A		A	A	B ³	D	D	B ¹		D	A	D	D	A
Crotonaldehyde	A	A	A	A		A	A						D	A	D	D	
Crude Oil	A	A	A	A	A	A	A	A	A				A	A	D	D	
Cyanic Acid	A	A	A	A		A	A			D			C	A	C		A
Cyclohexane	A	A	A	A	A	A	A	A	A	A ¹	A		A	A	D	D	A
Cyclohexanol	A	A	A	A		A	A	A			A		A	A	C	D	
Cyclohexanone	A	A	A	A		A	A	B					A	A	B	D	
DDT	A	A	A	A		A	A										
Decalin	A	A	A	A		A	A	A					D	A	D	D	
Decane	A	A	A	A		A	A						A	A	C	D	
Detergents	A	A	A	A	A	A	A	A	A ¹	A ¹	A ¹		A	A	B	A	A
Dextrin	A	A	A	A		A	A										
Diacetone Alcohol	A	A	A	A		A	A						D	D	B	A	
1,2, Dibromo Propane	A	A	A	A		A	A		A								
Dibutyl Phthalate	A	A		A ²				A ³			A ¹		D	C	D	B	
Dichloroacetic Acid	A	A		A ²				D			A						

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
o-Dichlorobenzene	A	A		A ²				C			A ¹	A					
Dichloroethane	A ¹	A ¹	A ¹		A ²	A ¹	A ¹	B	C ¹	A ¹	C ¹			C	D		A
Dichloroethylene	A	A		A ²							D						
Dichloropropionic Acid		A		A ²													
Diesel Fuel	A	A	A	A	A ¹	A	A	A	A	A	A		A	A	B	D	A
Diethylamine	A	A	A	A		A	A	A	A	B	D		C	D	C	B	A
Diethyl Benzene	A	A	A	A		A	A										
Diethyl Cellosolve	A	A	A	A		A	A										
Diethyl Ether	A	A	A	A		A	A	A ³			A ²		D	D	C	D	
Diethylene Glycol	A ²	A ²	A ²			A ²	A ²	A	A ¹	A	B ¹		A	A	A	A	A
Diethylene Triamine	A	A	A	A		A	A										
Diglycolic Acid		A		A ²													
Diisobutyl Ketone	A	A	A	A		A	A				A ²					A	
Diisobutylene	A	A	A	A		A	A						B	A	D	D	
Dimethylamine	A	A	A	A		A	A				A ¹						
Dimethylaniline	A	A	A	A		A	A	A									
Dimethyl Phthalate	A	A	A	A		A	A	C					D	B	D	B	
Dimethyl Sulfoxide	A	A	A	A		A	A	B									
Dimethyl Formamide	A	A	A	A		A	A	B ³			A ¹						
Dimethyl Sulfate		A		A ²													
Diethyl Phthalate	A	A		A ²				B									
p-Dioxane	A	A	A	A ²		A	A	B			A						
Diphenyl Oxide	A ¹	A ¹	A ¹	A ²		A ¹	A ¹	C		D			A	A	D	D	
Dyes	A	A	A	A	A	A	A	A	A	C				A	C		
Eoichlorohydrin		A		A ²							A						
Epsom Salts	A	A	A	A	A	A	A		A ¹	B	A ²		A	A	A	A	A
Esters	A	A	A	A ²							A ¹						
Ethane	A	A	A	A		A	A	A	D				A	A	B	D	A
Ethanolamine	A	A	A		D	A	A		A	D			B	D	B	B	A
Ether	A	A	A	A	B ¹	A	A	A	A	A ¹	C ¹		D	C	D	C	A
Ethyl Acetate	A	A	A	A	A ¹	A	A	A	A ²	A	C ¹		D	D	D	B	A
Ethyl Alcohol	A	A	A	A		A	A	A				A					
Ethylacetacetate	A	A	A	A ²		A	A										
Ethyl Acrylate	A	A	A	A	A	A	A		A								
Ethylamine	A	A	A	A ²		A	A										
Ethyl Chloride	A	A	A	A	B	A	A	A	A ¹	A ¹	C ¹		A	A	B	A	A
Ethyl Chloroacetate	A	A	A	A		A	A										
Ethyl Cyanoacetate	A	A	A	A		A	A										

Legend

A = No Effect — Excellent

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* = Consult Valmet if conditions within the valve permit polymerization.

1 = Satisfactory to 72°F (24°C)

2 = Satisfactory to 120°F (49°C)

3 = Satisfactory to 275°F (135°C)

An empty box indicates that no data was available at time of printing.

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a = Barrier Seat construction required

** Some decrease in wear resistance should be expected due to corrosion of proprietary filler. However, cycle life is expected to be better than virgin PTFE in the same application.

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Ethylene Bromide	A	A	A	A	A	A	A		A								
Ethylene Chlorohydrin	A	A	A	A ²		A	A										
Ethylene Diamine	A	A	A	A ²		A	A										
Ethylene Chloride	A	A	A	A	A	A	A	C ¹	A	A	C ¹		D	B	D	D	A
Ethylene Dichloride	A	A	A	A	A ¹	A	A	C ¹	B	B ¹	A		D	A	D	C	A
Ethylene Glycol	A	A	A	A	A	A	A	A	B	B	A ¹		A	A	A	A	A
Ethylene Oxide	A	A	A	A	A	A	A	B	A ¹		C ¹		D	D	D	C	A
Ethyl Sulfate	A	A	A	A	A	A	A						A	A			A
Fatty Acids	A	A	A	A	A	A	A	A	A	A ¹	A ¹		B	A	B	D	A
Ferric Chloride	A	A	A	A	A ¹	A	A	B	C ¹	D	A		A	A	B	A	A
Ferric Hydroxide	B ^{**}	A	D	A		A	A										
Ferric Nitrate	A	A	A	A	A	A	A		A	D	B ²		A	A	A	A	A
Ferric Sulfate	A	A	A	A	A	A	A	A	A ¹	D	A ²		A	A	A	A	A
Ferrous Chloride (10%)	A	A	A	A	B ¹	A	A	A	C ¹	D	A ¹		A	A	A		A
Ferrous Chloride	A	A	A	A	B ¹	A	A		C ¹	D	A ¹		A	A	A		A
Ferrous Hydroxide	B ^{**}	A	D	A		A	A										
Ferrous Nitrate		A		A		A	A										
Ferrous Sulfate	A	A	A	A	A	A	A		C ¹	D	A ¹		A ²			A	A
Fluoboric Acid	A	A	A	A		A	A		D		B ²		A		A	A ²	C
Fluorine	A ¹	A ¹	A ¹	A ²	A ¹	A ¹	A ¹	D	D		C ¹			B		A ¹	A
Fluosilicic	A	A	A	A	C	A	A		D		B ¹		A		A	A ²	A
Formaldehyde 40%	A	A	A	A	A	A	A	A	C ¹	A ¹	A ²		B	A	B	A	
Formaldehyde 100%	A	A	A		A	A	A		D	A	B		C	D	C	A	A
Formic Acid	A	A	A	A	A ²	A	A	B	C ¹	D	A		B	C	A	A	A
Freon 11	A	A	A	A		A	A	B	D	D	C	A	B	A	D	D	
Freon 12	A	A	A	A	C	A	A	A	D	B	C	A	A	B	A	B	
Freon 21	A	A	A	A		A	A		C								
Freon 22	A	A	A	A		A	A	A	B	A		A	D	D	A	A	
Freon 113	A	A	A	A		A	A	A		A		A	A	B	A	D	
Freon 123	A	A	A	A		A	A	A									
Freon 134a	A	A	A	A		A	A	A									
Freon TF	D	D	D					A	D	A		A	A	B	A	D	
Fruit Juice	A	A	A	A	A	A	A	A	A	A	A		A	A	A		
Fuel Oils	A	A	A	A	A	A	A	A	A ¹	B	C ¹		B	A	C	D	A
Furane	A	A	A	A ²		A	A										
Fumaric Acid	A	A	A	A		A	A										
Furan Resin	A	A	A		A ²	A	A			D	D		D		D	C	
Furfural	A	A	A	A	B ¹	A	A		B	D	C ¹	B	D	D	D	B	A
Gallic	A	A	A	A		A	A		B ¹		B ²		B	A	B	B	B
Gas-Manufactured	A	A	A	A	A	A	A		A				A	A			
Gas-Natural	A	A	A	A	A	A	A	A	A	A	D		A	A			
Gasoline	A	A	A	A	A	A	A	A	A	B	A ¹		A	A	B	D	A
Gelatin	A	A	A	A	A	A	A	A	A ¹	A	A		A	A	A	A	A
Glucose	A	A	A	A	A	A	A	A	B ¹	A	A ²		A	A	A	A	A

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Glue, P.V.A.	A	A	A	A		A	A		A ¹	A	A ¹		A	A	A	A	B
Glycerin	A	A	A	A	A	A	A	A	A ¹	A	A		A	A	A	A	A
Glycerol	A	A	A	A	A	A	A		D								
Glycol	A	A	A	A	A	A	A	A ²			A						
Glycolic Acid	A	A	A	A	A ¹	A	A	A		A	A		A	A	A	A	A
Gold Monocyanide	D	D	D							A			A	A	A		
Grape Juice	A	A	A	A		A	A	A	A	A	B		A	A	A		
Grease	A	A	A	A		A	A	A		D			D	A	D		
Heptane	A	A	A	A	A	A	A	A	A	A	B ¹		A	A	A	D	B
Hexane	A	A	A	A	A	A	A	A	A ¹	A	C ¹		A	A	B	D	A
Honey	A	A	A	A		A	A	A	A	A	B			A			
Hydraulic Oil (Petro)	A	A	A	A		A	A	A	A ¹	B	B	A	A	A	B	D	B
Hydraulic Oil (Synthetic)	A	A	A	A		A	A	A	A ¹		A	A		A			B
Hydrazine	C	A	C	A ¹				C		B			B	A	B	A	
Hydrazine Dihydrochloride		A		A ²													
Hydriodic Acid		A		A													
Hydrobromic Acid 20%	A	A	A	A	A	A	A	D	C	C	A		D	A	B	A	A
Hydrobromic Acid 100%	A	A	A	A	A	A	A	D	D	D	B ¹		D	A	D	A	A
Hydrochloric Acid, Dry Gas	A	A	A	A	A	A	A	A	A ¹		A						A
Hydrochloric Acid 20%	A	A	A	A	A	A	A	A	D	C	A	D		A			A
Hydrochloric Acid 37%	A	A	A	A	A	A	A	A	D	C	A	C	B	A	B	A	A
Hydrochloric Acid 100%	A	A	A	A	A	A	A	A	D	C		D	D	A	D	C	A
Hydrocyanic Acid (Gas 10%)	A	A	A	A		A	A	A		C	A		B	A	A	A	
Hydrofluoric Acid 20%	C	A	D	A	A ¹	A	A	D	C ¹	D	A		B ¹	A ¹	A ¹	A ¹	A
Hydrofluoric Acid 50%	C	A	D	A	A ¹	A	A	D	D	D	A ¹		B ¹	A ¹	A ¹	A ¹	A
Hydrofluoric Acid 75%	C	A	D	A	A ¹	A	A	D	D	D	A ¹		D	A ¹	D	C	A ²
Hydrofluoric Acid 100%	C	A	D	A		A	A	D	D	D			D	A ¹	D	C	
Hydrofluosilicic Acid 20%	C	A		A	A	A	A		D	B	B ²		A	D	C	A	A
Hydrofluosilicic Acid 100%	C	A		A	A	A	A		D	A	B ¹		B	A	B	A	A
Hydrogen Gas	A	A	A	A	A	A	A	A	A ²	B	A ²		A	A	A	A	A
Hydrogen Cyanide	A	A		A		A	A	A									
Hydrogen Peroxide 10%	A	A	D	A	A	A	A	A	C ¹	D	A ¹			A			C
Hydrogen Peroxide 30%	A	A	D	A	A	A	A	A	D	D	A			A			A
Hydrogen Peroxide 50%	A	A	D	A ²	A	A	A	A ¹	D	D	A ¹			A			C
Hydrogen Peroxide 100%	A	A	D	A ¹	A	A	A	A ¹	D	D	A ²		B	A	A	A	C
Hydrogen Phosphide		A		A ²	A	A	A										
Hydrogen Sulfide (Aqua)	A	A	A	A	A ¹	A	A	A	C ¹	C	A		D	D	A	A	A
Hydrogen Sulfide (Dry)	A	A	A	A	A ¹	A	A	A	C ¹		A		A	D	A	A	A

Legend

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** Some decrease in wear resistance should be expected due to corrosion of proprietary filler. However, cycle life is expected to be better than virgin PTFE in the same application.

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PEA	PEEK	Nylon	Delrin	wUHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Hydroquinone	A	A	A	A		A	A	B									
Hydroxyacetic Acid 70%	A	A	A	A		A	A			A			A	A	A	A	
Hypochlorous Acid	A	A	A	A		A	A										
Ink	A	A	A	A		A	A		C	A			A	A	A		
Iodine	A	A	A	A		A	A	B ¹	D	D	A ¹		B	A	D	B	A
Iodine (in Alcohol)	A	A	A	A		A	A	B ³	C	D	B						
Iodoform	C	C	C	B											A	A	
Isobutyl Alcohol	A	A	A	A		A	A										
Isotane	A	A	A	A	A	A	A	A	D		B		A	A	D		
Isopropyl Alcohol	A	A	A	A		A	A	A	B ¹	D	A		D	D	D	B	A
Isopropylamine		A		A ²													
Isopropyl Ether	A ¹	A ¹	A ¹		A	A	A	A	A ¹	D	A		B	D	C	D	A
Jet Fuel (JP3, 4, 5)	A	A	A	A	A	A	A	A	A ¹	A ¹	B	B	A	A	D	D	A
Kerosene	A	A	A	A	A	A	A	A	A	A ²	B		A	A	C	D	A
Ketones	A	A	A		B ¹	A	A		A ²	D	A ¹		D	D	D	D	A
Lacquers	A	A	A	A		A	A		A ¹	D	B ¹		D	D	D	D	A
Lacquer Thinners	A	A	A	A		A	A		A ¹	D	B ¹		D	D	D	D	A
Lactic Acid	A	A	A	A	A ¹	A	A	A	B	B	A		A	A	A	A	A
Lard	A	A	A	A		A	A	A	A ¹	B	B ¹		A	A	C	D	A
Latex	A	A	A	A		A	A		A ²	C			A	A		A	
Lauric Acid	A	A	A	A		A	A										
Lauryl Chloride		A		A		A	A										
Lauryl Sulfate		A		A		A	A										
Lead Acetate	A	A	A	A	A	A	A	A	A ¹	D	A ²		B	D	B	A	A
Lead Sulfamate	A ¹	A ¹	A ¹					A	B ¹	A	A ¹		B	A	A	A	
Ligron		A		A		A	A		D	B	C ²		A	A	B	D	
Lime	A ¹	A ¹	A ¹						A ¹	B	B ¹		A	A	A	D	A
Linoleic Acid	A	A	A	A		A	A	A	A								
Linseed Oil	A	A	A	A		A	A	A			A						
Lithium Bromide (Saturated)		A		A		A	A	A									
Lithium Hydroxide	B ^{**}	A	D	A		A	A										
Lubricants	A	A	A	A	A	A	A	A	A ¹	A	D		A	A	B	D	A
Magnesium Carbonate	A ¹	A ¹	A ¹	A		A	A	A		A	A ²		A ²	A		A	
Magnesium Chloride (10%)	A	A	A	A	A	A	A	A	A ¹	A	A		A	A	A	A	A
Magnesium Chloride	A	A	A	A	A	A	A	B ¹	A ¹	A	A ²		A	A	A	A	A
Magnesium Hydroxide	B ^{**}	A	D	A	A	A	A	A	B ¹	A	A ²		B	A	B	A	A
Magnesium Nitrate	A	A	A	A		A	A	A	A ¹	A	A ²		A	A	A	A	
Magnesium Oxide		A		A		A	A			A			A	C	A		
Magnesium Sulfate (10%)	A	A	A	A	A	A	A	A	A ¹	A	A ²		A	A	A	A	A
Magnesium Sulfate	A	A	A	A	A	A	A		A ¹	A	A ²		A	A	A	A	A
Maleic Acid	A	A	A	A		A	A	A	B ¹	A	A		D	A	D	D	A
Maleic Anhydride	A	A	A	A						D			D	A	D	D	
Malic Acid	A	A	A	A		A	A		C ¹	A	B ²		A	A	B	D	A
Mash	A	A	A	A	A	A	A	A	A	A			A	A	A	A	

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Mayonnaise	A	A	A	A	A	A	A	A	A		B		C	A	A		
Melamine	A	A	A	A		A	A		A				C	A	D	A	
Mercuric Chloride (Dilute)	A	A	A	A	A	A	A	A	D	B	A		A	A	A	A	C
Mercuric Cyanide	A	A	A	A	A	A	A	A	A		A ²		A	A	A		A
Mercuric Nitrate	A	A	A	A	A	A	A	A									
Mercury	A	A	A	A	A	A	A	A	A ²	A	A		A	A	A	A	C
Methacrylic Acid	A	A	A	A	A	A	A										
Methane	A	A	A	A	A	A	A	A									
Methane Sulfonic Acid (50%)	A	A	A	A	A	A	A										
Methanol (Methyl Alcohol)	A	A	A	A	A ²	A	A	A	C ¹	A	A ¹		A	A	A	A	A
Methyl Acetate	A	A	A	A		A	A	A	A ²	B	A		D	D	B	B	A
Methyl Acrylate	A	A	A	A		A	A			B			D	D	B	B	
Methyl Acetone	A	A	A	A		A	A		A	D			D	A	D		A
Methyl Alcohol 10%	A	A	A	A	A ²	A	A	A	C ¹	A	A ¹		A	D	A	A	A
Methylamine	A	A	A	A	A	A	A		A				C ¹	D		A ¹	
n-Methyl Aniline	A	A	A	A		A	A										
Methyl Benzoate	A	A	A	A		A	A										
Methyl Bromide	A	A	A	A		A	A	B	C	D			B	A	D	D	A
Methyl Butyl Ketone	A	A	A	A		A	A	A	D	D			D	D	D	A	
Methyl Cellosolve	A	A	A	A	A	A	A		B	D			C	D	B	B	A
Methyl Chloride	A	A	A	A	A ¹	A	A		C	D	C ¹		D	A	D	C	A
Methyl Chloroform	A	A	A	A ²		A	A										
Methyl Chlomethyl Ether	A	A	A	A		A	A										
Methyl Cyanoacetate	A	A	A	A		A	A										
Methyl Dichloride	A	A	A	A		A	A		C	D			D	A		D	
Methylene Bromide	A	A	A	A													
Methylene Chloride	A	A	A	A	A	A	A	C	C ¹	A ¹	C ¹		D	B		D	A
Methylene Iodide	A	A	A	A													
Methyl Ethyl Ketone	A	A	A	A	A ¹	A	A	A ³	A ¹	B	A		D	D	D	A	A
Methyl Isobutyl Ketone	A	A	A	A	A	A	A	A	A ¹	D	B ¹		D	D	D	C	A
Methyl Isopropyl Ketone	A	A	A			A	A		D	D			D	D	D	D	
Methyl Methacrylate	A	A	A	A		A	A										
Methyl Salicylate	A	A	A	A		A	A										
Methyl Sulfuric Acid	A	A	A	A		A	A										
Methyl Trichlorosilane	A	A	A	A		A	A										
Milk	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A	A
Molasses	A	A	A	A	A	A	A	A	A ¹	A	A		A	A	A		A
Monochlorobenzene	A	A	A	A		A	A	C									

Legend

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2 = Satisfactory to 120°F (49°C)

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** Some decrease in wear resistance should be expected due to corrosion of proprietary filler. However, cycle life is expected to be better than virgin PTFE in the same application.

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Monoethanolamine	A	A	A	A ²		A	A										
Morpholine	A	A	A	A ²		A	A	B			A						
MTBE (15%)	A	A	A	A		A	A			A			A	A			
MTBE										A			A	D			
Mustard	A	A	A	A		A	A	A	A ¹	C	A ¹		C	D	A		A
Naptha	A	A	A	A	A	A	A	A	A ¹	D	A ¹	A	C	A	D	D	A
Naphthalene	A	A	A	A	A	A	A	B	A ¹	D	A		D	A	D	D	A
Nickel Chloride	A	A	A	A	A	A	A	A	C ¹	A	B ²		A	A	B	A	A
Nickel Nitrate	A	A	A	A		A	A	A									
Nickel Sulfate	A	A	A	A	A	A	A		A ¹	A	B ²		A	A	A	A	A
Nicotine	A	A	A	A	A	A	A										
Nicotonic Acid	A	A	A	A	A	A	A										
Nitrating Acid (< 15% H2SO4)	A	A	A	A		A	A								A		
Nitrating Acid (> 15% H2SO4)	A	A	A	A		A	A								A		
Nitrating Acid (< 1% Acid)	A	A	A	A		A	A								A		
Nitrating Acid (< 15% HNO3)	A	A	A	A		A	A								A		
Nitric Acid (5–10%)	A	A	A	A ²	A ¹	A	A	A	C ¹	D	A	D	D	A	B	B	A
Nitric Acid (20%)	A	A	A	A ²	A ¹	A	A	A	D	D	A	D	D	A	D	B	A
Nitric Acid (50%)	A	A	A	A ²	A	A	A	C	D	D	B ²	D	D	A	D	D	D
Nitric Acid (Concentrate)	A	A	A	A ¹	A ¹	A	A	C	D	D	C ¹	D	D	A	D	D	D
Nitrogen Gas	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Nitrogen Dioxide	A	A	A	A	A	A	A										
Nitromethane	A	A	A	A	A	A	A										
Nitrous Acid	A	A	A	A		A	A	A ¹		D				A	D	A	
Nitrobenzene	A	A	A	A ¹	A ¹	A	A	C	B ¹	B	C ¹	B	D	B	D	D	B
Octane	A	A	A	A		A	A	A									
Octene	A	A	A	A		A	A										
Oils:																	
Aniline	A	A	A	A		A	A		A	D			D	C	D	B	
Anise	A	A	A			A	A			D					D		
Bay	A	A	A			A	A			D				A	D		
Bone	A	A	A			A	A			D			A	A	D		
Castor	A	A	A	A		A	A	A	A	A			A	A	A	B	
Cinnamon	A	A	A			A	A	A		D				A	C		
Citric	A	A	A			A	A	A		D				A	D		
Clove	A	A	A			A	A						A	A	C		
Cocoa Nut	A	A	A	A		A	A			A	A ¹		A	A	C	C	
Cod Liver	A	A	A	A		A	A	A		B			A	A	B	A	
Corn	A	A	A	A		A	A	A		D	C		A	A	C	C	
Cotton Seed	A	A	A	A	A ²	A	A	A	A	B ¹	B ²		A	A	C	C	A
Cresote	A	A	A	A	A	A	A		D	D	C ²		B	A	C	D	A
Diesel Fuel (20,30,40,50)	A	A	A	A	A ¹	A	A	A	A	D	C ¹		A	A	B	D	A
Fuel (1,2,3,5A,5B,6)	A	A	A	A	A	A	A	A	A ¹	D	C ¹		B	A	D	D	A
Ginger	A	A	A	A	A	A	A			A			A	A	A	A	

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Oils—Continued																	
Hydraulic (See Hydraulic Oils)	A	A	A	A	A	A	A	A									
Lemon	A	A	A	A		A	A			D				A	D	D	
Linseed	A	A	A	A		A	A		A¹	A	A		A	A	C	C	A
Mineral	A	A	A	A	A	A	A	A	A	A	B¹	C	A	A	B	D	A
Olive	A¹	A¹	A¹			A¹	A¹	A	A¹		A¹		A	A	B	B	A
Orange		A						A		D			A	A	C		
Palm		A						A		D			A	A	D		
Peanut	A	A	A	A		A	A	A		D			A	A	B	C	
Peppermint		A								D			D	A	D		
Pine	A	A	A	A		A	A		A	D			B	A	D	D	
Rapeseed	A	A	A	A						D			B	A	B	A	
Rosin	A	A	A			A	A		A¹		B²		A	A			A
Sesame Seed	A	A	A			A	A			D			A	A	D		
Silicone	A	A	A	A		A	A		A¹	A	A		A	A	A	A	A
Soybean	A	A	A	A		A	A		B¹	D	A¹		D	A	C	C	A
Sperm	A	A	A	A		A	A							A	D		
Tanning	A	A	A	A		A	A			D			A	A	D		
Turbine	A	A	A	A		A	A			D	C		B	A	D	D	
Oleic Acid	A	A	A	A	A	A	A	A³	B²	C¹	C²		C	B	C	B	A
Oleum 25%	A	A	A	A²	A	A	A	D	D	D	D		D	A	D	D	D
Oleum 100%	A	A	A	A¹	A	A	A	D	D	D	D		D	A	D	D	D
Oxalic Acid (10%)	A¹	A¹	A¹	A	A	A¹	A¹	A	B²	C	A²		B	A	B	A	A
Oxalic Acid (cold)	A¹	A¹	A¹	A	A	A¹	A¹		B²	C	A²		B	A	B	A	A
Oxygen	A	A	A	A	A	A	A	A	D†	D							
Ozone (<1% in Air)	A	A	A	A	A	A	A	A	D†		A						
Palmitic Acid	A	A	A	A		A	A	A	D								
Paraffin	A	A	A	A		A	A	A	A¹	A	A		A	B	A	D	A
Pentane	A	A	A			A	A	A	A¹	B	D		A	A	B	D	A
Perchloroethylene	A	A	A	A	A	A	A	A³	C¹	A	D	A	C	A	D	D	A
Perchloric Acid (72%)	A	A	A	A²				D			A²						
Perchloric Acid (10%)	A	A	A	A				A			A						
Petrolatum	C	C	C	A					D	B	B		A	A	A	A	
Petroleum Distillates	A	A	A	A	A	A	A	A					A	A	B	D	A
Petroleum Ether	A	A	A	A		A	A	A	A		A¹						
Phenol (10%)	A	A	A	A	B	A	A	B	D	D	A		D	A	D	B	A
Phenol (Carbolic Acid)	A	A	A	A	B	A	A	D	C	D	A		D	A	D	B	A
Phenolsulfonic Acid	A	A	A	A		A	A										

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Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PEA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Phenylhydrazine		A		A		A	A										
Phenylhydrazine Hydrochloride		A		A		A	A										
o-Phenylphenol		A		A		A	A										
Phosgene		A		A		A	A										
Phosphoric Acid (10%)	A	A	A	A	A	A	A	A	D	C'	A'		D	A	B	B	A
Phosphoric Acid (40%)	A	A	A	A	A	A	A	A	B'	D	A		D	A	D	B	A
Phosphoric Acid (85%)	A	A	A	A	A	A	A	A	D		A						
Phosphoric Acid (Crude)	A	A	A	A	A	A	A		B'	D	B		D	A	D	B	A
Phosphoric Acid Anhydride		A				A	A			D					A		
Phosphoric Acid (Molten)		A				A	A			D					A		
Phosphorous Pentoxide	A	A	A	A		A	A				A						
Phosphorous Oxychloride	A	A	A	A		A	A										
Phosphorous Pentachloride	A	A	A	A		A	A										
Phosphorous Trichloride	A	A	A	A		A	A				A'						
Photographic Developer	A	A	A	A		A	A			A	A		A	A	A	B	A
Phthalic Acid	A	A	A	A	A	A	A	A	A		A						
Phthalic Anhydride	A	A	A	A		A	A		A				B	A	A	A	A
Picric Acid	A	A	A	A ²	A	A	A		C'	A			B	A	B	B	A
Plating Solutions:																	
Antimony Plating 130°F	A	A	A	A		A	A		D	A			A	A	A		
Arsenic Plating 110°F	A	A	A	A		A	A		A	A			A	A	A		
Brass Plating:																	
Regular Brass Bath 100°F	A	A	A	A		A	A		A	A	B		A	A	A		A
High Speed Brass Bath 110°F	A	A	A	A		A	A		A	A	B		A	A	A		A
Bronze Plating:																	
Cu-Cd Bronze Bath 72°F	A	A	A	A		A	A		A	A			A	A	A	A	
Cu-Sn Bronze Bath 160°F	A	A	A	A		A	A		A	B			A	A	A	A	
Cu-Zn Bronze Bath 100°F	A	A	A	A		A	A		A	A			A	A	A		
Cadmium Plating:																	
Cyanide Bath 90°F	A	A	A	A		A	A		A	A			A	A	A		
Fluborate Bath 100°F	A	A	A	A		A	A		D	C			B	A	C		
Chromium Plating:																	
Chromic-Sulfuric Bath 130°F	A	A	A	A		A	A		D	D			D	C	D		
Fluosilicate Bath 95°F	A	A	A	A		A	A		D	D			D	C	D		
Fluoride Bath 130°F	A	A	A	A		A	A		D	D			D	C	D		
Black Chrome Bath 95°F	A	A	A	A		A	A		D	D			C	C	D		
Barrel Chrome Bath 95°F	A	A	A	A		A	A		D	D			D	C	D		
Copper Plating (Cyanide):																	
Copper Strike Bath 120°F	A	A	A	A		A	A		A	A			A	A	A		
Rochelle Salt Bath 150°F	A	A	A	A		A	A		A	B			A	A	B		
High Speed Bath 180°F	A	A	A	A		A	A		A	B			A	A	B		
Copper Plating (Acid):																	
Copper Sulfate Bath RT	A	A	A	A		A	A		D	A			A	A	A		
Copper Fluoborate Bath 120°F	A	A	A	A		A	A		D	C			B	A	C		

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Copper Plating (Misc.):																	
Copper Pyrophosphate		A		A		A	A		A	A			A	A	A		
Copper (Electroless)	A	A	A	A		A	A		A	D			D	A	D		
Gold Plating:																	
Cyanide 150°F	A	A	A	A		A	A		A				A	A	A		
Neutral 75°F	A	A	A	A		A	A		A				A	A	A		
Acid 75°F	A	A	A	A		A	A		A				A	A	A		
Indium Sulfamate Plating R.T.	A	A	A	A		A	A		D				A	A	A		
Iron Plating:																	
Ferrous Chloride Bath 190°F	A	A	A	A		A	A		D				B	A	D		
Ferrous Sulfate Bath 150°F	A	A	A	A		A	A		D				A	A	B		
Ferrous Am. Sulfate Bath 150°F	A	A	A	A		A	A		D				A	A	B		
Sulfate-Chloride Bath 160°F	A	A	A	A		A	A		D				B	A	C		
Fluoborate Bath 145°F	A	A	A	A		A	A		D				B	A	C		
Sulfamate 140°F	A	A	A	A		A	A		D				A	A	A		
Lead Fluoborate Plating:	A	A	A	A		A	A		D				B	A	A		
Nickel Plating:																	
Watts Type 115–160°F	A	A	A	A		A	A		A				A	A	A		
High Chloride 130–160°F	A	A	A	A		A	A		D				A	A	B		
Fluoborate 100–170°F	A	A	A	A		A	A		D				B	A	A		
Sulfamate 100–140°F	A	A	A	A		A	A		A				A	A	A		
Electroless 200°F	A	A	A	A		A	A		D				D	A	D		
Rhodium Plating 120°F	A	A	A	A		A	A		D				A	A	B	A	
Silver Plating 80–120°F	A	A	A	A		A	A		A				A	A	A	A	
Tin-Fluoborate Plating 100°F	A	A	A	A		A	A		D				B	A	C		
Tin-Lead Plating 100°F	A	A	A	A		A	A		D				B	A	C		
Zinc Plating:																	
Acid Chloride 140°F	A	A	A	A		A	A		D				A	A	A		
Acid Sulfate Bath 150°F	A	A	A	A		A	A		D				A	A	B		
Acid Fluoborate Bath R.T.	A	A	A	A		A	A		D				B	A	C		
Alkaline Cyanide Bath R.T.	A	A	A	A		A	A		A		B		A	A	A		
Polyvinyl Acetate	A	A	A	A		A	A										
Polyvinyl Alcohol	A	A	A	A		A	A										
Potash		A							A	B	A		A	A	D		
Potassium Aluminum Chloride	A	A	A	A		A	A										
Potassium Aluminum Sulfate (50%)	A	A	A	A		A	A										
Potassium Bicarbonate	A	A	A	A	A	A	A	A	A'	C	A		A	A	A		A
Potassium Borate	A	A	A	A		A	A										

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Potassium Bromate	A	A	A	A		A	A										
Potassium Bromide (10%)	A	A	A	A	A	A	A	A	A ¹	A	A		A	A	A	A	A
Potassium Bromide	A	A	A	A	A	A	A		A ¹	A	A		A	A	A	A	A
Potassium Carbonate	A	A	A	A	A	A	A	A	A ¹	B	A		A	A	A	A	A
Potassium Chlorate	A	A	A	A	A ²	A	A		C ¹	B	A		C	A	A	A	C
Potassium Chloride	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A	A
Potassium Chromate	A ¹	A ¹	A ¹	A		A ¹	A ¹		A	C	A		A	A	A	A	A
Potassium Cyanide Solutions	A	A	A	A	A	A	A		A ¹	C	A		A	A	A	A	A
Potassium Dichromate (5%)	A	A	A	A	A	A	A	A	D	C	A		A	A	A	A	A
Potassium Dichromate	A	A	A	A	A	A	A		D	C	A		A	A	A	A	A
Potassium Ferrocyanide	A	A	A	A	A	A	A	A	B ¹		A ¹		A	A		A	A
Potassium Fluoride	A	A	A	A		A	A										
Potassium Hydroxide (Caustic Potash)	B ²	A	D	A ²	B	A	A	A ¹	C ¹	D	A		B	B	B	A	C
Potassium Hypochlorite		A		A		A	A										
Potassium Nitrate (10%)	A	A	A	A		A	A	A	B ¹	B	B		A	A	A	A	A
Potassium Nitrate	A	A	A	A		A	A		B ¹	B	B		A	A	A	A	A
Potassium Perboate		A		A		A	A										
Potassium Perchlorate		A		A		A	A										
Potassium Permanganate	A	A	A	A		A	A	A	D	C	A		C	A	A	A	A
Potassium Persulfate		A		A ²													
Potassium Sulfate	A	A	A	A	A ¹	A	A	A	A ¹	B	A ²		A	A	A	A	A
Potassium Sulfide	A	A	A	A	A	A	A	A			A ²		A	A	A	A	A
Propionic Acid	A	A	A	A		A	A				A ¹						
Propane (Liquified)	A	A	A	A	A	A	A	A	A ¹	A	C ¹		A	A	B	D	A
Propyl Alcohol	A	A	A	A	A	A	A	A									
Propylene Dibromide	A	A	A	A		A	A										
Propylene Dichloride	A	A	A	A		A	A										
Propylene Glycol	A	A	A			A	A			B	A		A	A	C		
Propylene Glycol Methyl Ether	A	A	A	A		A	A										
Propylene Oxide	A	A	A	A ²		A	A										
Pyridine	A	A	A	A ¹	A ¹	A	A	C	C ¹	A	A ¹		D	D	D	B	A
Pyrogalllic Acid	A	A	A	A ¹	A	A	A			D				A			A
Pyrogallol		A		A ²													
Rosins	A	A	A	A	A	A	A		A ¹	B	B ¹		A				A
Rum	A	A	A	A	A	A	A		A	A			A	A	A		
Rust Inhibitors	A	A	A	A	A	A	A			A			A	A	C		
Salad Dressings	A	A	A	A	A	A	A	A	A	A			A	A			
Salicylaldehyde	A	A	A	A	A	A											
Salicylic Acid	A	A	A	A	A	A											
Salt Brine	A	A	A	A	A	A		A			A						
Sea Water	A	A	A	A	A	A	A	A	A ²	A	A		A	A	A	A	A
Shellac (Bleached)		A				A	A		A ¹	A	A ¹		A		D		A
Shellac (Orange)	A	A	A			A	A		A ¹	A	A ¹		A		D		A
Silicone	A	A	A	A		A	A	A	A ¹	A	A	C	A	A	A	A	A

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Silicon Tetrachloride	A	A	A	A		A	A										
Silver Chloride	A	A	A	A		A	A										
Silver Cyanide	A	A	A	A		A	A										
Silver Bromide	A	A	A		A	A	A			C							
Silver Nitrate	A	A	A	A	A	A	A	A	A ¹	A	B ²		B	A	A	A	A
Soap Solutions	A	A	A	A		A	A	A	A ¹	A	C ²		A	A	A	A	A
Soda Ash (see Sodium Carbonate)																	
Sodium Acetate	A	A	A	A	A	A	A	A	B ¹	B	B ²		B	D	B	A	A
Sodium Aluminate	A	A	A			A	A	A	A ¹	B			A	A	A	A	A
Sodium Benzene-Sulfonate	A	A	A	A		A	A										
Sodium Benzoate (10%)	A	A	A	A		A	A	A			A						
Sodium Benzoate	A	A	A	A		A	A				A						
Sodium Bicarbonate	A	A	A	A	A	A	A	A	A	A	A ²		B	D	B	A	A
Sodium Bisulfate	A	A	A	A	A ²	A	A		A ¹	B	A ²		B	A	C	A	A
Sodium Bisulfite	A	A	A	A		A	A	A	C ¹	B	A ²		A	A	A	A	A
Sodium Borate	A	A	A	A		A	A	A	A ¹		A ²		A	A	A	A	A
Sodium Bromide	A	A	A	A		A	A	A									
Sodium Carbonate	A	A	A	A	A	A	A	A	B ¹	A ¹	B ²		A	A	A	A	A
Sodium Chlorate (10%)	A	A	A	A		A	A	A	D	A	B ²		C	A	A	A	C
Sodium Chlorate	A	A	A	A		A	A		D	A	B ²		C	A	A	A	C
Sodium Chloride (10%)	A	A	A	A	A	A	A	A	A ¹	A ¹	A ²		A	A	A	A	A
Sodium Chloride	A	A	A	A	A	A	A	A	A ¹	A ¹	A ²		A	A	A	A	A
Sodium Chromate	A	A	A	A	A	A	A		D	D			A	A	A		A
Sodium Cyanide (10%)	A	A	A	A	A	A	A	A	A ¹	A	A ²		A	A	A	A	A
Sodium Cyanide	A	A	A	A	A	A	A		A ¹	A	A ²		A	A	A	A	A
Sodium Dichromate (Alkaline)		A		A		A	A										
Sodium Ferricyanide	A	A	A	A		A	A										
Sodium Ferrocyanide	A	A	A	A		A	A										
Sodium Fluoride	A ¹	A ¹	A ¹	A		A ¹	A ¹	A	B		A ²		A ¹	A	D	A	A
Sodium Glutamate	A	A	A	A		A	A										
Sodium Hydrosulfite	A	A	A			A	A		A					A	A		
Sodium Hydroxide (10%)	B ^{**}	A	D	A	A	A	A	A	A	A	A	D	B	B	B	A	A ²
Sodium Hydroxide (20%)	B ^{**}	A	D	A	A	A	A	B ³	A	A	A	D	B	B	B	A	A ²
Sodium Hydroxide (50%)	B ^{**}	A	D	A	A	A	A	B ³	A	C	A	D	B	B	B	A	A ²
Sodium Hydroxide (80%)	B ^{**}	A ¹	D	A	A	A ¹	A ¹	B ¹	C	D	B	D	B	B	B	A	A ²
Sodium Hypochlorite (<20%)	A	A	A	A	A	A	A	B	D	D	A		B	A	B	B	B
Sodium Hypochlorite (100%)	A	A	A	A	A	A	A	B ¹	D	D	A		B	A	B	B	C
Sodium Hyposulfite	A	A	A	A		A	A								C		

Legend

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** Some decrease in wear resistance should be expected due to corrosion of proprietary filler. However, cycle life is expected to be better than virgin PTFE in the same application.

Environment	Material																
	XTREME	PTFE	Filled PTFE	Tefzel	Kel F	FEP	PFA	PEEK	Nylon	Delrin	UHMWPE	Polyimide	Buna N	Viton	Neoprene	EPDM	Graphite
Sodium Iodide	A	A	A	A		A	A										
Sodium Lignosulfonate	A	A	A	A		A	A										
Sodium Metaphosphate	A	A				A	A		A¹	B	A¹		A	A	B	A	A
Sodium Metasilicate	A	A	A	A		A	A		A	D			A	A	A	A	
Sodium Nitrate	A	A	A	A	A	A	A	A	A¹	A	A		B	A	B	A	C
Sodium Nitrite	A	A	A	A		A	A										
Sodium Perborate (10%)	A	A	A	A	A	A	A	A	B¹	B	A¹		B	A	B	A	C
Sodium Perborate	A	A	A	A	A	A	A		B¹	B	A¹		B	A	B	A	C
Sodium Perchlorate		A		A²													
Sodium Peroxide	A	A	A	A	A	A	A		A¹	D	A		B	A	B	A	A
Sodium Phosphate		A		A		A	A	A									
Sodium Polyphosphate		A			A	A	A		A¹	B	A		A	A	B	A	A
Sodium Silicate	A	A	A	A	A	A	A	A	A¹	C	A		A	A	A	A	A
Sodium Silicofluoride	A	A	A	A	A	A	A										
Sodium Sulfate (50%)	A	A	A	A	A	A	A	A	A	B	A²		A	A	A	A	A
Sodium Sulfate	A	A	A	A	A	A	A		A	B	A²		A	A	A	A	A
Sodium Sulfide (25%)	A	A	A	A	A¹	A	A	A	A¹	B	A²		A	A	A	A	A
Sodium Sulfide	A	A	A	A	A¹	A	A		A¹	B	A²		A	A	A	A	A
Sodium Sulfite	A	A	A	A	A	A	A		D		B¹		A	A	A	A	A
Sodium Tetraborate	A	A	A			A	A		A	B	A²		A	A			A
Sodium Thiosulfate (Hypo)	A	A	A	A	A	A	A	A	B	C¹	A		B	A	A	A	A
Sorbic Acid	A	A	A	A		A	A										
Sour Crude Oil	A	A	A	A		A	A	A									
Sorghum		A							A	A			A	A	A		
Soy Sauce	A	A	A	A		A	A	A	A	A			A	A	A		
Stannic Chloride	A	A	A	A	A	A	A	A	B¹	C	A²		A	A	D	B	A
Stannic Fluoborat		A		A		A	A			C			A	A	A		
Stannous Chloride	A	A	A	A	A	A	A		C¹		B²		A	A	A	A	
Stannous Fluoride	A	A	A	A		A	A										
Starch	A	A	A	A	A	A	A	A	A¹	A	A		C	A	A	A	A
Stearic Acid	A	A	A	A	A	A	A	A	A²	A	B¹		B	A	B	B	A
Stoddard's Solvent	A	A	A	A	A	A	A		A	A	C²		A	A	C	D	A
Styrene Monomer	A*	A*	A*	A		A	A	B³	A¹	A			D	B	D	D	A
Succinic Acid	A	A	A	A		A	A				A						
Sugar (Liquids)	A	A	A	A		A	A	A	A¹	A	A		A	A	B	A	A
Sulfamic Acid	A	A	A	A		A	A										
Sulfate	A	A	A			A	A		B¹	D	A		A	A	A	A	A
Sulfur	A	A	A	A		A	A	A³			A						
Sulfur Chloride	A	A	A		A	A	A		A¹	D	C¹		D	A	D	D	D
Sulfur Dioxide	A	A	A	A	A	A	A	A	C¹	B	A		D	A	B	A	A
Sulfur Dioxide (Dry)	A	A	A	A	A	A	A	A	B¹	B	A¹		D	A	D	A	A
Sulfur Trioxide (Dry)	A	A	A	A¹		A	A		A¹	D	C¹		D	A	D	B	D
Sulfur Trioxide (Liquid)	A	A	A	A¹		A	A				D						
Sulfuric Acid (<10%)	A	A	A	A	A	A	A	A	C¹	D	A		D	A	B	B	A¹

Environment	Material																
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Sulfuric Acid (10-75%)	A	A	A	A	A	A	A	B	D	D	A		D	A	C	B	A¹
Sulfuric Acid (75-100%)	A	A	A	A	A	A	A	D	D		B¹		D	A	D	B	C¹
Sulfuric Acid (Hot Conc.)	A	A	A	A²	A	A	A	D	D		D		D	A	D	D	D
Sulfuric Acid (Cold Conc.)	A	A	A	A	A	A	A	D	D		C		D	A	D	B	D
Sulfurous Acid (10%)	A	A	A	A	A	A	A	A	D	C	A²		B	A	B	B	A
Sulfurous Acid	A	A	A	A	A	A	A		D	C	A²		B	A	B	B	A
Sulfuryl Chloride	A	A	A			A	A			A	D						
Tall Oil	A	A	A	A	A	A	A	B³									
Tallow	A	A	A	A	A	A	A	A	A¹	A	A		A	A			A
Tannic Acid	A	A	A	A	A	A	A	A	A	B	B²		A	A	B	A	A
Tanning Liquors	A	A	A	A		A	A		A¹	B	A¹		A	A	A	B	A
Tartaric Acid	A	A	A	A	A²	A	A	C	B²	B	A		A	A	B	B	A
Tetrachloroethane	A	A	A		A	A	A		C¹	A	A²		D	A			A
Tetrachloroethylene	A	A	A		A	A	A	A³	A¹	A	B		D	A	D	D	A
2,3,4,6-Tetrachlorophenol	A	A	A	A		A	A										
Tetraethyl Lead	A	A	A	A		A	A	A									
Tetrahydrofuran	A	A	A	A	A¹	A	A	B³	A	A	C¹		D	D	D	B	A
Tetramethyl Ammonium Hydroxide (50%)	B*¹	A	D	A		A	A										
Thionyl Chloride	A	A	A	A		A	A	B									
Tin Tetrachloride	A	A	A	A		A	A										
Titanium Dioxide	A	A	A	A		A	A	A									
Titanium Tetrachloride	A	A	A	A		A	A	A									
Toluene (toluol)	A	A	A	A	B²	A	A	B³	A¹	C¹	C²	A	D	A	D	D	A
Tomato Juice	A	A	A	A	A	A	A	A	A¹	B	A¹		A		A		A
Tributyl Phosphate	A	A		A²		A	A				A						
Trichloroacetic Acid	A	A	A	A		A	A				A²						
Trichloroethane	A	A	A	A	A	A	A		C¹	A			D	A	D	D	A
Trichloroethylene	A	A	A	A	A	A	A	A	C¹	B	B²		C	A	D	D	A
Trichloromethane	A	A	A	A		A	A										
2,4,5-Trichlorophenol	A	A	A	A		A	A	A									
Trichloropropane	A¹	A¹	A¹		A	A¹	A¹			A			A	A	A		
Tricresylphosphate		A				A	A		A²	C	A	B	D	B	D	A	A
Triethylamine	A	A	A	A	A	A	A		A¹	D			A	A	B		A
Trisodium Phosphate	A	A		A		A	A	A									
Turpentine	A	A	A	A	A	A	A	A	A¹	A²	C¹		A	A	D	D	A
UDMH-Hydrazine (50/50)		A		A		A	A										
Unleaded Gasoline	A	A	A	A	A	A	A	A	A	B	C¹		A	A	B	D	A
Urea (50% Water)	A	A	A	A		A	A	A			A						

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Urine	A	A	A	A	A	A	A	A	A ¹	A	A ²		A ¹	A ¹	D	A ¹	A
Varnish	A	A	A	A	A	A	A		C ¹	A	C ¹		B	A	D	D	A
Varsol		A		A		A	A										
Vegetable Juice	A	A	A	A		A	A	A	A	A			C	A	C		
Vinegar	A	A	A	A	A	A	A	A	C	B	B ²		B	A	B	A	A
Vinyl Acetate	A*	A*	A*	A		A	A	A									
Vinyl Chloride (Monomer)	A*	A*	A*	A ²		A	A	B									
Water, Acid, Mine	A	A	A	A	A	A	A	A	B ¹	A ¹	A	D	A	A	C	A	A
Water, Distilled	A	A	A	A	A	A	A	A	A ¹	A	A	D	A	A	A	A	A
Water, Fresh	A	A	A	A	A	A	A	A	A ¹	A ²	A	D	A	A	A	A	A
Water, Salt	A	A	A	A	A	A	A	A	A ¹	A	A	D	A	A	A	A	A
Water, Sewage	A	A	A	A	A	A	A	A	A ¹		A	D					
Wax	A	A	A	A	A	A	A	A									
Weed Killers	A	A	A			A	A		A	A			A	A	C		
Whey	A	A	A			A	A			A			A	A			
Whiskey and Wines	A	A	A	A	A	A	A	A	A ¹	A	C		A	A	A	A	A
White Liquor (Pulp Mill)	A	A	A	A		A	A		A ¹	D	A ²		A	A	A		A
White Water (Paper Mill)	A	A	Aa	A		A	A		A	B				A	A		
Xylene	A	A	A	A	A	A	A	B	A ²	A	C ¹		D	A	D	D	A
Zinc Acetate	A	A	A	A		A	A										
Zinc Chloride	A	A	A	A	A	A	A	A	C ¹	C	A		A	A	A	A	A
Zinc Hydrosulfite	A	A	A	A	A	A	A		A	C			A		A	A	
Zinc Nitrate	A	A	A	A	A	A	A	A									
Zinc Sulfide	A	A	A	A	A	A	A										
Zinc Sulfate (10%)	A	A	A	A	A	A	A	A	C ¹	C	A ²		A	A	A	A	A
Zinc Sulfate	A	A	A	A	A	A	A		C ¹	C	A ²		A	A	A	A	A

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