



**Kalrez**<sup>®</sup> perfluoroelastomer parts

A Product of DuPont Dow Elastomers

## Chemical Resistance and Fluid Compatibility, Including All Chemicals Under the Clean Air Act

Kalrez<sup>®</sup> perfluoroelastomer parts combine the elastomeric properties of Viton<sup>®</sup> fluoroelastomer with the chemical resistance of Teflon<sup>®</sup> fluoropolymer resins. Due to its unique properties, Kalrez perfluoroelastomer parts should be considered for service in all applications and environments where dependable, long-term service is desired, as well as in hot or aggressive environments that are beyond the serviceability of common elastomers.

This guide is intended to provide assistance in determining the suitability of seven commercially available elastomers—nitrile (NBR), ethylene propylene (EPDM), silicone (VMQ), fluorosilicone (FVMQ), vinylidene fluoride-based fluoroelastomer (FKM), polysulfides (T), and Kalrez perfluoroelastomer—for service in over 1,600 chemicals and fluids. The criteria used for these ratings included volume swell resistance based on laboratory immersion testing, laboratory aging tests, actual field experience, and informed judgments based on experience in similar chemical groups.

The ratings for the six common elastomers are based on published literature and are offered for general comparative purposes only—we cannot guarantee their accuracy nor assume responsibility for their use.

### Thermal Stability

The ratings for these six common elastomers may be overly optimistic for elevated temperature and/or high concentration applications because many are based on ambient temperature testing. Suitability of these elastomers for service at elevated temperatures rapidly diminishes because higher temperatures increase the effects of chemicals on the base polymer as well as the cross-link systems. Serviceability is further limited by the upper service temperature limit of each polymer.

As an example, consider a specific case involving an FKM with an upper service temperature limit of nominally 204°C (400°F). Many sources will show an “A” rating for FKM suitability in toluene service, a

#### Upper Service Temperature Limit

Kalrez 4079	316°C (600°F)
Kalrez 3018	288°C (550°F)
Kalrez 1050LF	288°C (550°F)
Kalrez 6375	275°C (525°F)
Kalrez 2037	220°C (428°F)
NBR	107°C (225°F)
EPDM	149°C (300°F)
VMQ	204°C (400°F)
FVMQ	190°C (375°F)
FKM	204°C (400°F)
T	150°C (302°F)

**Note:** These limits are based on air oxidative stability; limits for specific chemicals are often much lower. Additionally, these elastomers are commercially available in different grades of polymer and can vary in compound ingredients—different grades and compounds within a polymer class can have significantly different performance characteristics. 100°C (212°F) was chosen as the baseline comparison for the elastomers in this guide.

common chemical. However, immersion testing of commonly available FKM O-rings at a slightly elevated temperature of 50°C (122°F) for 168 hours shows a volume swell exceeding 24% and significant loss of physical properties—surely warranting a “C” rating. Similar tests with Kalrez perfluoroelastomer parts, however, show that Kalrez performs well up to 316°C (600°F).

### Chemical Resistance

Because Kalrez has outstanding chemical resistance, it withstands nearly all classes of chemicals. With this combination of high thermal stability and excellent chemical resistance, the Kalrez perfluoroelastomer

parts rating may be conservative, as actual field experience and the example above have demonstrated.

In comparing the chemical and fluid resistance of Kalrez perfluoroelastomers to that of Teflon® fluoropolymer resins, certain differences should be kept in mind:

- Kalrez is an amorphous low-modulus rubber whereas Teflon is a crystalline high-modulus plastic. In fluid environments where high permeation occurs, Kalrez will probably swell to a greater extent than Teflon, even though the polymer is not chemically attacked.

Environments in which this is most noticeable are fully halogenated solvents and Freon®. Serviceability of Kalrez® in these environments will be dependent upon the specifics of the application.

- As with all elastomers, it is necessary to compound Kalrez perfluoroelastomers with fillers and curatives to gain desired mechanical properties for functionality. In a limited number of environments, even though the polymer is stable, the fillers and curative systems may interact with the chemicals. However, because the level of fillers in Kalrez perfluoroelastomers is much lower than in most other elastomers, such filler interactions are generally negligible with Kalrez parts. Where such interactions can occur, such as in highly oxidative environments, service performance is dependent on the conditions of the application and may be affected by compound choice.

Because each application is unique, it is recommended that users of Kalrez perfluoroelastomer parts always conduct their own evaluations to determine the suitability of Kalrez for their application. Because of laboratory constraints and differences in field applications, the results shown in this technical information may be based on conditions that may not necessarily reflect actual operating environments for a specific application. Additionally, many elastomeric materials may show excellent chemical resistance to pure reagents in relatively short-term laboratory tests. However, they may fail in actual service because of chemical attack by additives and/or impurities. Kalrez perfluoroelastomer parts, with their near-universal chemical resistance, provide an extra degree of safety against these unknown corrosive influences.

Case histories are available from your authorized Kalrez distributor detailing proven performance of Kalrez parts in over 100 specific chemical applications. Information on test performance in a limited number of specific chemicals is also available through your authorized Kalrez distributor.

## Caution

Kalrez perfluoroelastomer parts, like all fluorinated products, should not be exposed to molten or gaseous alkali metals, such as sodium and potassium, because a

## Rating System

- A Elastomer shows little or no effect (generally less than 10% swell) after exposure to the chemical; slight swelling or loss of properties may occur under severe conditions but this should not affect performance.
- B Elastomer may be affected by the chemical after exposure, as evidenced by slight visible swelling (10%–30%) and/or loss of physical properties; Kalrez parts will often perform satisfactorily long after other elastomers have failed.
- C Elastomer is affected by the chemical after exposure, as evidenced by moderate to severe swelling and/or loss of physical properties; limited functionality is possible but must be determined by testing.
- U Elastomer is not suitable for service in the chemical.

Where no rating is shown, insufficient information was available to make a judgment.

**An asterisk (\*) next to a Kalrez perfluoroelastomer rating indicates that differences may exist between Kalrez compounds in certain applications that could affect relative performance. The compound numbers indicated are recommended for that application. If no compound number appears beside the asterisk (\*), contact your authorized distributor or DuPont Dow Elastomers for the best compound. For such environments, other elastomers generally have very limited serviceability.**

**This chemical compatibility listing is based on using our standard compounds Kalrez® 4079 and 6375 for the vast majority of chemicals and fluids. When the rating does not note a compound, any Kalrez compound may be used. Mixtures with two or more different chemical types/classes should be reviewed with the Kalrez technical group or your authorized Kalrez distributor before proceeding. Testing is always recommended for each proposed use of Kalrez because actual application conditions may vary.**

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T	Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Abietic Acid	A							Aluminum Hydroxide	A						U
Acetaldehyde	A* 6375	U	A	B	U	U		Aluminum Linoleate	A						
Acetamide	A* 1050LF	A	A	B	A	B		Aluminum Nitrate	A	A	A	B	—	A	B
Acetanilide	A* 4079						U	Aluminum Oxalate	A						
Acetic Acid, Glacial	A	C	A	B	U	C	U	Aluminum Phosphate	A	A	A	A	—	A	A
Acetic Acid, 30%	A	B	A	A	B	B		Aluminum Potassium Sulfate	A						
Acetic Anhydride	A	C	B	C	U	U	B	Aluminum Salts	A						
Acetoacetic Acid	A							Aluminum Sodium Sulfate	A						
Acetone	A	U	A	C	U	U	U	Aluminum Sulfate	A	A	A	A	A	A	A
Acetone Cyanohydrin	A						U	Alums	A						A
Acetonitrile	A	—	A	—	—	—	U	Amino Phenol	A* 1050LF						U
Acetophenetidine	A							Aminoanthraquinone	A						U
Acetophenone	A	U	A	U	U	U	U	Aminoazobenzene	A						
Acetotoluidide	A							Aminobenzene Sulfonic Acid	A						U
Acetyl Bromide	A							Aminobenzoic Acid	A						
Acetyl Chloride	A	U	U	C	A	A	U	2-(2-Aminoethoxy)-ethanol	A* 1050LF						
Acetylacetone	A						U	Aminoethylethanolamine	A* 1050LF						U
Acetylene	A	A	A	B	—	A	U	Aminopyridine	A						U
Acetylene Tetrabromide	A						U	Aminosalicylic Acid	A						
Acetylene Tetrachloride	A						U	Ammonia, Anhydrous	A* 1050LF	B	A	C	U	U	A
Acetylsalicylic Acid	A						U	Ammonia Gas (cold)	A	A	A	A	U	U	A
Acids, Non-Organic	A						U	Ammonia Gas (hot)	A* 1050LF	U	B	A	U	U	U
Acids, Organic	A						U	Ammonium Acetate	A						
Aconitic Acid	A							Ammonium Arsenate	A						
Acridine	A							Ammonium Benzoate	A						
Acrolein	A							Ammonium Bicarbonate	A						
Acrylic Acid	A						U	Ammonium Bifluoride	A* 1050LF						
Acrylonitrile	A* 1050LF	U	U	U	U	C	U	Ammonium Bisulfite	A						
Adipic Acid	A* 4079/6375	A	A	—	A	—	U	Ammonium Bromide	A						
Aliphatic Dicarboxylic Acid	A						U	Ammonium Carbamate	A						
Alkanes (Paraffin Hydrocarbons)	A						A	Ammonium Carbonate	A	U	—	—	—	—	
Alkanesulphonic Acid	A						U	Ammonium Chloride (Sal Ammoniac)	A	A	A	—	—	A	U
Alkenes (Olefin Hydrocarbons)	A						A	Ammonium Citrate	A						U
Alkyl Acetone	A						C	Ammonium Dichromate	A						
Alkyl Alcohol	A						C	Ammonium Diphosphate	A						
Alkyl Amine	A* 1050LF/6375						U	Ammonium Fluoride	A* 1050LF						
Alkyl Aryl Sulphonates	A							Ammonium Fluosilicate	A						
Alkyl Arylsulphonics	A							Ammonium Formate	A						
Alkyl Benzene	A						U	Ammonium Hydrogen Fluoride	A* 1050LF						
Alkyl Chloride	A						U	Ammonium Hydroxide (conc.)	A* 1050LF	U	A	A	B	B	U
Alkyl Sulfide	A							Ammonium Iodide	A						
Alkyl naphthalene Sulfonic Acid	A						U	Ammonium Lactate	A						
Allylidene Diacetate	A* 4079						U	Ammonium Metaphosphate	A						
Alpha Picoline	A							Ammonium Molybdate	A						
Aluminum Acetate	A	B	A	U	U	U	U	Ammonium Nitrate	A	A	A	—	—	—	
Aluminum Bromide	A						A	Ammonium Nitrite	A	A	A	B	—	—	
Aluminum Chlorate	A							Ammonium Oxalate	A						A
Aluminum Chloride	A	A	A	B	A	A	U	Ammonium Perchlorate	A						
Aluminum Ethylate	A						B	Ammonium Perchloride	A						
Aluminum Fluoride	A	A	A	B	A	A	C	Ammonium Persulfate	A	U	A	—	—	—	A
Aluminum Fluosilicate	A						A	Ammonium Phosphate (di-basic)	A	A	A	A	—	—	A
Aluminum Formate	A														

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T	Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Ammonium Phosphate (mono-basic)	A						A	Arochlor <sup>2</sup> , 1260	A	A	A	B	A	A	U
Ammonium Phosphate (tri-basic)	A						A	Aromatic Fuels	A						
Ammonium Phosphite	A						A	Arsenic Acid	A	A	A	A	A	A	
Ammonium Picrate	A						C	Arsenic Oxide	A						
Ammonium Polysulfide	A							Arsenic Trichloride	A	A	C	—	—	—	
Ammonium Salicylate	A							Arsenic Trioxide	A						
Ammonium Salts	A							Arsenic Trisulfide	A						
Ammonium Sulfamate	A						U	Arsenites	A						
Ammonium Sulfate	A	A	A	—	—	U	U	Arsine	A						
Ammonium Sulfide	A						U	Aryl Orthosilicate	A						
Ammonium Sulfite	A							Ascorbic Acid	A						A
Ammonium Sulphate Nitrate	A							Askarel	A	B	U	U	B	A	U
Ammonium Thiocyanate	A							Aspartic Acid	A						
Ammonium Thioglycollate	A						U	Asphalt	A	B	U	U	B	A	A
Ammonium Thiosulfate	A							ASTM <sup>3</sup> Oil, No. 1	A						A
Ammonium Tungstate	A							ASTM <sup>3</sup> Oil, No. 2	A						C
Ammonium Valerate	A							ASTM <sup>3</sup> Oil, No. 3	A						C
Amyl Acetate	A	U	C	U	U	U	U	ASTM <sup>3</sup> Oil, No. 4	A						C
Amyl Alcohol	A	B	A	U	A	B	C	ASTM <sup>3</sup> Ref. Fuel A	A						A
Amyl Borate	A	A	U	—	—	A	A	ASTM <sup>3</sup> Ref. Fuel B	A						A
Amyl Butyrate	A							ASTM <sup>3</sup> Ref. Fuel C	A						B
Amyl Chloride	A						U	Automatic Transmission Fluids	A						B
Amyl Chloronaphthalene	A	U	U	U	B	A		Automotive Brake Fluids	A						
Amyl Cinnamic Aldehyde	A						C	Aurex <sup>11</sup> 256	A						
Amyl Laurate	A							Azobenzene	A						
Amyl Mercaptan	A						U	Barium Carbonate	A						
Amyl Naphthalene	A	U	U	U	A	A	C	Barium Chlorate	A						
Amyl Nitrate	A						B	Barium Chloride (aq)	A	A	A	A	A	A	A
Amyl Nitrite	A						B	Barium Cyanide	A						
Amyl Phenol	A						B	Barium Hydroxide	A	A	A	A	A	A	A
Amyl Propionate	A							Barium Iodide	A						
Anderol <sup>1</sup> L-774	A						B	Barium Nitrate	A						A
Aniline	A	U	A	U	C	C	B	Barium Nitride	A						A
Aniline Dyes	A	U	A	C	B	B	B	Barium Oxide	A						A
Aniline Hydrochloride	A	B	B	U	B	B	U	Barium Peroxide	A						A
Aniline Hydrochlorine	A						U	Barium Polysulfide	A						
Aniline Sulfate	A							Barium Salts	A						
Aniline Sulfite	A							Barium Sulfate (aq)	A	A	A	A	A	A	A
Animal Fats	A	A	B	B	A	A	U	Barium Sulfide (aq)	A	A	A	A	A	A	A
Animal Oils	A						U	Beet Sugar Liquors	A	A	A	A	A	A	
Anisole	A							Benzaldehyde	A	U	A	B	C	U	U
Anisoyl Chloride	A							Benzaldehyde-disulfonic Acid	A*						U
Ansul's Ether	A	C	C	U	C	U		Benzamide	A						U
Anthracene	A							Benzanthrone	A						
Anthranilic Acid	A						C	Benzene	A	U	U	U	C	A	U
Anthraquinone	A							Benzene Hexachloride	A						U
Antifreeze Solutions	A* 6375						C	Benzene Sulfonic Acid	A	U	C	U	B	A	
Antimony Chloride	A						A	Benzidine	A						
Antimony Pentachloride	A						A	Benzidine 3 Sulfonic Acid	A						
Antimony Pentafluoride	B						A	Benzil	A						
Antimony Sulfate	A							Benzilic Acid	A						
Antimony Tribromide	A							Benzine (Ligroin)	A	A	U	U	A	A	
Antimony Trichloride	A							Benzoic Acid	A* 6375	C	C	C	B	A	
Antimony Trifluoride	B							Benzoin	A						
Antimony Trioxide	A						C	Benzonitrile	A						
Aqua Regia	A	U	C	U	C	B		Benzophenone	A						B
Arachidic Acid	A						C	Benzoquinone	A						U
Argon Gas	A						U	Benzotrithloride	A						U
Arochlor <sup>2</sup> , 1248	A	C	C	B	B	A	U	Benzotrifluoride	A						U
Arochlor <sup>2</sup> , 1254	A	U	C	C	B	A	U	Benzoyl Chloride	A	U	U	—	B	A	C
								Benzoyl Peroxide	A						C
								Benzoylsulfonic Acid	A						U

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T	Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Benzyl Acetate	A						U	Butyl Butyrate	A						U
Benzyl Alcohol	A	U	A	B	B	A	U	Butyl Carbitol	A	U	A	U	U		U
Benzyl Amine	A* 1050LF/6375						U	Butyl Cellosolve <sup>5</sup>	A	C	A	—	U	U	
Benzyl Benzoate	A	U	B	—	A	A	U	Butyl Cellosolve <sup>5</sup> Acetate	A						A
Benzyl Bromide	A						C	Butyl Chloride	A						A
Benzyl Butyl Phthalate	A						U	Butyl Ether	A						A
Benzyl Chloride	A	U	U	U	B	A	C	Butyl Glycolate	A						
Benzyl Phenol	A							Butyl Lactate	A						
Benzyl Salicylate	A							Butyl Laurate	A						U
Beryllium Chloride	A							Butyl Mercaptan	A						
Beryllium Fluoride	A							Butyl Methacrylate	A						
Beryllium Oxide	A							Butyl Oleate	A	U	B	—	B	A	
Beryllium Sulfate	A							Butyl Oxalate	A						
Bismuth Carbonate	A							Butyl Phenols	A						
Bismuth Nitrate	A							Butyl Stearate	A	B	C	—	B	A	A
Bismuth Oxychloride	A							Butylbenzoic Acid	A						
Bittern	A						B	Butylene	A	B	U	U	U	A	B
Blast Furnace Gas	A	U	U	A	B	A		Butyraldehyde	A* 6375	U	B	U	U	U	C
Bleach Solutions	A* 2037	U	A	B	B	A		Butyric Acid	A						C
Borax Solution (Sodium Borate)	A	B	A	B	B	A		Butyric Anhydride	A						
Bordeaux Mixture	A	B	A	B	B	A		Butyrolactone	A						B
Boric Acid	A	A	A	A	A	A	U	Butyryl Chloride	A						
Boric Oxide	A						U	Cadmium Chloride	A						
Borneol	A							Cadmium Cyanide	A						
Bornyl Acetate	A							Cadmium Nitrate	A						
Bornyl Chloride	A						C	Cadmium Oxide	A						
Bornyl Formate	A							Cadmium Sulfate	A						
Boron Hydride	A							Cadmium Sulfide	A						
Boron Phosphate	A							Calcium Acetate	A	B	A	U	U	U	U
Boron Tribromide	A							Calcium Arsenate	A						
Boron Trichloride	A* 4079							Calcium Benzoate	A						
Boron Trifluoride	A* 4079							Calcium Bicarbonate	A						
Boron Trioxide	A							Calcium Bisulfide	A						U
Brine	A	A	A	A	A	A	A	Calcium Bisulfite	A	U	U	A	A	A	U
Bromic Acid	A							Calcium Bromide	A						
Bromine, Anhydrous	A	U	U	U	B	A		Calcium Carbide	A						U
Bromine Pentafluoride	B* 2037							Calcium Carbonate	A						
Bromine Trifluoride	B* 4079	U	U	U	U	U		Calcium Chlorate	A						
Bromine Water	A*	U	B	U	B	A		Calcium Chloride	A	A	A	A	A	A	A
Bromobenzene	A	U	U	U	A	A		Calcium Chromate	A						
Bromobenzene Cyanide	A						A	Calcium Cyanamide	A						C
Bromochloro- trifluoroethane (Halothane)	A						U	Calcium Cyanide	A						A
Bromoform	A							Calcium Fluoride	A						
Bromomethane (Methyl Bromide)	A							Calcium Gluconate	A						
Bromotrifluoromethane	B* 4079							Calcium Hydride	A						
Brucine Sulfate	A							Calcium Hydroxide	A	A	A	A	A	A	U
Bunker "C" (Fuel Oil)	A	A	U	B	A	A		Calcium Hydroxide	A	B	A	B	B	A	U
Butadiene	A	U	C	U	B	A		Calcium Hypochlorite	A						B
Butane	A	A	U	U	A	A	A	Calcium Hypophosphite	A						B
Butanediol	A*							Calcium Lactate	A						B
Butyl Acetate	A	U	C	U	U	U	C	Calcium Naphthenate	A						B
Butyl Acetyl Ricinoleate	A	C	A	—	B	A	B	Calcium Nitrate	A	A	A	B	A	A	A
Butyl Acrylate	A	U	U	—	U	U	B	Calcium Oxide	A						
Butyl Alcohol	A	A	B	B	B	A	B	Calcium Oxalate	A						
Butyl Amine	A* 1050LF/6375	C	B	U	U	U		Calcium Permanganate	A						
Butyl Benzoate	A	U	B	—	A	A		Calcium Peroxide	A						U
Butyl Benzolate	A							Calcium Phenol- sulphonate	A						
								Calcium Phosphite	A						
								Calcium Phosphate Acid	A						
								Calcium Propionate	A						C
								Calcium Pyridine Sulfonate	A						
								Calcium Salts	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Calcium Stearate	A						
Calcium Sulfamate	A						
Calcium Sulfate	A						
Calcium Sulfide	A	A	A	B	A	A	
Calcium Sulfite	A						
Calcium Thiocyanate	A						
Calcium Tungstate	A						
Caliche	A						
Camphene	A						
Camphor	A						
Camphoric Acid	A						
Cane Sugar Liquors	A	A	A	A	A	A	
Capric Acid	A						
Caproic Acid	A						
Caproic Aldehyde	A						
Caprolactam	A						
Capronaldehyde	A* 6375						
Carbamate	A	C	B	—	A	A	
Carbazole	A						
Carbitol <sup>5</sup>	A	B	B	B	B	B	
Carbolic Acid (Phenol)	A	U	B	U	A	A	
Carbon Bisulfide	A	C	U	U	A	A	
Carbon Dioxide	A	A	B	B	A	A	B
Carbon Disulfide	A						
Carbon Fluorides	A						
Carbon Monoxide	A	A	A	A	B	A	U
Carbon Tetrabromide	A						
Carbon Tetrachloride	A	C	U	U	C	A	C
Carbon Tetrafluoride	B						
Carbonic Acid	A	B	A	A	A	A	C
Casein	A						
Castor Oil	A	A	B	A	A	A	C
Caustic Lime	A						
Caustic Potash	A						
Caustic Soda (Sodium Hydroxide)	A						
Cellosolve <sup>5</sup>	A	U	B	U	U	C	B
Cellosolve <sup>5</sup> Acetate	A	U	B	U	U	U	B
Cellulose Acetate	A						
Cellulose Acetate Butyrate	A						
Cellulose Ether	A						
Cellulose Nitrate	A						
Cellulose Tripropionate	A						
Cellulube <sup>7</sup> (Phosphate Esters)	A	U	A	A	C	A	U
Cerium Sulfate	A						C
Cerous Chloride	A						
Cerous Fluoride	A						
Cerous Nitrate	A						A
Cetane (Hexadecane)	A						A
Cetyl Alcohol	A						
Chaulmoogric Acid	A						
China Wood Oil (Tung Oil)	A	A	C	U	B	A	
Chloral	A						
Chloramine	A						
Chloranthraquinone	A						
Chlordane	A						
Chloric Acid	A						
Chlorinated Solvents	A						
Chlorine (Dry)	A	U	U	U	A	A	
Chlorine (Wet)	B*	U	C	U	B	B	
Chlorine Dioxide	B* 2037	U	C	—	B	A	

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Chlorine Trifluoride	B	U	U	U	C	U	
1-Chloro-1-Nitro Ethane	A	U	U	U	U	U	
Chloro Oxyfluorides	B						
Chloro Xylenols	A						
Chloroacetaldehyde	B*						
Chloroacetic Acid	A	U	A	—	U	U	
Chloroacetone	A	U	A	U	U	U	
Chloroacetyl Chloride	A						
Chloroamino Benzoic Acid	A						
Chloroaniline	A						
Chlorobenzaldehyde	A*						
Chlorobenzene	A	U	U	U	B	A	U
Chlorobenzene Chloride	A						U
Chlorobenzene Trifluoride	A						U
Chlorobenzochloride	A						
Chlorobenzotrifluoride	A						
Chlorobromomethane	A	U	B	U	B	A	C
Chlorobromopropane	A						
Chlorobutadiene (Chloroprene)	A	U	U	U	B	A	
Chlorobutane (Butyl Chloride)	A						
Chlorodifluoromethane	B* 4079/6375						
Chlorododecane	A	U	U	U	A	A	C
Chloroethane	A						
Chloroethane Sulfonic Acid	A						C
Chloroethylbenzene	A						
Chloroform	A	U	U	U	U	A	
Chlorohydrin	A						
O-Chloronaphthalene	A	U	U	U	B	A	
Chloronitrobenzene	A						
Chloropentafluoroethane	B* 4079/6375						
Chlorophenol	A						
Chloropicrin	A						
Chloroprene	A						
Chlorosilanes	A						
Chlorosulfonic Acid	A	U	U	U	U	U	U
Chlorotoluene	A	U	U	U	B	A	U
Chlorotoluene Sulfonic Acid	A						U
Chlorotoluidine	A						U
Chlorotrifluoroethylene (CTFE)	B* 4079/6375						A
Chlorotrifluoromethane (Freon <sup>6</sup> B)	B* 4079/6375						A
Chloroxylols	A						
Cholesterol	A						
Chrome Alum	A						C
Chrome Plating Solutions	A	U	B	B	B	A	
Chromic Acid	A	U	C	C	C	A	U
Chromic Chloride	A						U
Chromic Fluorides	A						C
Chromic Hydroxide	A						
Chromic Nitrates	A						B
Chromic Oxide	A						C
Chromic Phosphate	A						
Chromic Sulfate	A						
Chromium Potassium Sulfate (Alum)	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Chromyl Chlorides	A						
Cinnamic Acid	A						
Cinnamic Alcohol	A						
Cinnamic Aldehyde	A						
Citric Acid	A	A	A	A	A	A	A
Clorox <sup>16</sup>	A	B	B	B	B	A	
Coal Tar	A	A	U	U	A	A	
Cobaltous Acetate	A						
Cobaltous Bromide	A						
Cobaltous Chloride	A	A	A	B	A	A	
Cobaltous Linoleate	A						
Cobaltous Naphthenate	A						
Cobaltous Sulfate	A						
Coconut Oil	A	A	C	A	A	A	A
Cod Liver Oil	A	A	A	B	A	A	
Codien	A						
Coke Oven Gas	A	U	U	B	B	A	
Copper Acetate	A	B	A	U	U	U	U
Copper Ammonium Acetate	A						C
Copper Carbonate	A						
Copper Chloride	A	A	A	A	A	A	U
Copper Cyanide	A	A	A	A	A	A	
Copper Gluconate	A						
Copper Naphthenate	A						
Copper Nitrate	A						C
Copper Oxide	A						
Copper Salts	A						
Copper Sulfate	A	A	A	A	A	A	C
Corn Oil	A	A	C	A	A	A	C
Cottonseed Oil	A	A	B	A	A	A	C
Creosote (Coal Tar)	A	A	U	U	A	A	C
Cresol (Methyl Phenol)	A	U	U	U	B	A	C
Cresylic Acid	A	U	U	U	B	A	U
Crotonaldehyde	A						
Crotonic Acid	A						
Crude Oil	A						U
Cumaldehyde	A						
Cumene (Isopropylbenzene)	A	U	U	U	B	A	
Cumene Hydroperoxide	A						U
Cutting Oils	A						
Cyanamide	A						
Cyanides	A						
Cyanoacetic Acid	A* 4079/6375						
Cyanogen Chloride	A						
Cyanogen Gas	A						
Cyanohydrin	A						
Cyanuric Chloride	A						
Cyclohexane	A	A	U	U	B	A	A
Cyclohexanol	A	C	C	U	A	A	B
Cyclohexanone	A	U	B	U	U	U	B
Cyclohexene	A						
Cyclohexylamine	A* 1050LF/6375						
Cyclohexylamine Carbonate	A* 1050LF/6375						
Cyclohexylamine Laurate	A* 1050LF/6375						
Cyclopentadiene	A						
Cyclopentane	A						
Cyclopolyolefins	A						
P-Cymene (Isopropyl-toluene)	A	U	U	U	B	A	U

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
DDT (Dichlorodiphenyl-trichloroethane)	A						
Decane	A	A	U	B	A	A	A
Deionized Water	A* 6375						U
Denatured Alcohol	A	A	A	A	A	A	
Detergent Solutions	A	A	A	A	A	A	
Developing Fluids	A	A	B	A	A	A	
Dextrin	A						
Dextro Lactic Acid	A						
Dextrose	A						
Diacetone	A	U	A	U	U	U	C
Diacetone Alcohol	A	U	A	B	U	U	C
Dialkyl Sulfates	A						
Diallyl Ether	A						
Diallyl Phthalate	A						
Diamylamine	A* 1050LF/6375						
Diazinon	A						
Dibenzyl (sym-Diphenylethane)	A						
Dibenzyl Ether	A	U	B	—	—	U	B
Dibenzyl Sebecate	A	U	B	C	C	U	B
Diborane	A						
Dibromoethane	A						
Dibromoethylbenzene	A	U	U	U	B	B	
Dibutyl Amine	A* 1050LF/6375	U	C	C	U	U	C
Dibutyl Cellosolve <sup>5</sup>							
Adipate	A						
Dibutyl Ether	A	U	C	U	C	C	A
Dibutyl Methylene-dithio Glycolate	A						
Dibutyl Phthalate	A	U	B	B	C	C	B
Dibutyl Sebecate	A	U	B	B	B	B	B
Dibutyl Thioglycolate	A						
Dibutyl Thiourea	A						
Dichloroacetic Acid	A						
Dichloroaniline	A						
O-Dichlorobenzene	A	U	U	U	B	A	A
Dichlorobutane	A						U
Dichlorobutene	A						U
Dichlorodifluoromethane	B* 4079						
Dichlorodiphenyl-Dichloroethane (DDD)	A						C
Dichloroethane	A						U
Dichloroethylene	A						
Dichlorofluoromethane	A						
Dichlorohydrin	A						
Dichloroisopropyl Ether	A	U	C	U	C	C	
Dichloromethane	A						U
Dichlorophenol	A						
Dichlorophenoxyacetic Acid	A						
Dichloropropane	A						U
Dichloropropene	A						
Dichlorosilane	A						U
Dichlorotetrafluoroethane	B						B
Dicyclohexylamine	A* 1050LF/6375	C	U	—	U	U	U
Dicyclohexylammonium Nitrate	A						
Dieldrin	A						
Diesel Oil	A	A	U	U	A	A	
Diethanolamine (DEA)	A* 1050LF/6375						C
Diethyl Carbonate	A						
Diethyl Ether	A	U	U	U	C	U	

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Diethyl Phthalate	A						
Diethyl Sebecate	A	B	B	B	B	B	
Diethyl Sulfate	A						
Diethylamine	A* 1050LF/6375	B	B	B	U	U	C
Diethylaniline	A						
Diethylbenzene	A	U	U	U	C	A	
Diethylene Glycol	A	A	A	B	A	A	
Diethylenetriamine	A* 1050LF						
Difluorodibromomethane	A						U
Difluorodichloromethane	B* 4079						
Difluoroethane	A						
Difluoromonochloroethane	A						U
Diglycol Chloroformate	A						
Diglycolic Acid	A						
Dihydroxydiphenylsulfone	A						
Diisobutyl Ketone	A						
Diisobutylcarbinol	A						
Diisobutylene	A	B	U	U	C	A	C
Diisopropyl Ether (DIPE)	A						
Diisopropyl Ketone	A	U	A	U	U	U	
Diisopropylbenzene	A	U	U	—	B	A	
Diisopropylidene Acetone	A	U	C	U	U	U	
Dimethyl Acetamide	A						
Dimethyl Aniline (Xylidine)	A	C	B	U	U	U	
Dimethyl Disulfide (DMDS)	A						
Dimethyl Ether (Methyl Ether) (Monomethyl Ether)	A	A	U	A	A	A	
Dimethyl Formaldehyde	A						C
Dimethyl Formamide (DMF)	A	B	B	B	U	U	C
Dimethyl Hydrazine	A						
Dimethyl Phenyl Carbinol	A						B
Dimethyl Phenyl Methanol	A						B
Dimethyl Phthalate	A	U	B	—	B	B	B
Dimethyl Sulfoxide (DMSO)	A						
Dimethyl Terephthalate (DMT)	A						
Dimethylamine (DMA)	A* 1050LF/6375						
Dinitrochlorobenzene	A						
Dinitrogen Tetroxide	B* 1045						
Dinitrotoluene (DNT)	A	U	U	U	U	U	U
Diocetyl Phthalate	A	C	B	C	B	B	B
Diocetyl Sebecate	A	U	B	C	C	B	C
Diocetylamine	A						
Dioxane	A	U	B	U	C	U	U
Dioxolane	A	U	B	U	U	U	U
Dipentene	A	B	U	U	C	A	A
Diphenyl (Biphenyl/Phenylbenzene)	A	U	U	U	B	A	
Diphenyl Oxide (Diphenyl Ether)	A	U	U	C	B	A	U
Diphenylamine (DPA)	A						
Diphenylene Oxide	A						
Diphenylpropane	A						
Di-Tert-Butyl Peroxide	A						
Dodecylbenzene	A						
Dowanol® P Mix	A						
Dowtherm® Fluids	A	U	U	C	B	A	U
Dry Cleaning Fluids	A	C	U	U	B	A	U

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Epichlorohydrin	A* 6375	U	B	U	U	U	U
Erucic Acid	A						
Ethane	A	A	U	U	B	A	A
Ethanol	A						A
Ethanolamine	A* 1050LF	B	B	B	U	U	U
Ethers	A						A
Ethyl Acetate	A	U	B	B	U	U	B
Ethyl Acetoacetate	A	U	B	B	U	U	B
Ethyl Acrylate	A	U	B	B	U	U	
Ethyl Alcohol	A	A	A	A	A	C	
Ethyl AluminumDichloride	A						
Ethyl Benzene	A	U	U	U	A	A	U
Ethyl Benzoate	A	U	A	U	A	A	B
Ethyl Bromide	A						
Ethyl Butyrate	A* 4079						
Ethyl Cellosolve <sup>5</sup>	A	U	U	U	U	U	B
Ethyl Cellulose	A	B	B	C	U	U	U
Ethyl Chloride	A	A	C	U	A	A	U
Ethyl Chlorocarbonate	A	U	B	U	B	A	U
Ethyl Chloroformate	A	U	B	U	U	U	U
Ethyl Ether	A	C	C	U	C	U	C
Ethyl Formate	A* 4079	U	B	—	A	A	U
Ethyl Hexanol	A						
Ethyl Lactate	A						
Ethyl Mercaptan	A	U	C	C	—	B	
Ethyl Nitrite	A						
Ethyl Oxalate	A	U	A	U	B	A	A
Ethyl Pentachlorobenzene	A	U	U	U	B	A	
Ethyl Pyridine	A						
Ethyl Silicate	A	A	A	—	A	A	B
Ethyl Stearate	A						
Ethyl Tertiary Butyl Ether (ETBE)	A						C
Ethyl Valerate	A						
Ethylamine	A* 1050LF						C
Ethylcyclopentane	A						
Ethylene	A	A	B	—	A	A	
Ethylene Chloride	A	U	C	U	C	B	C
Ethylene Chlorohydrin	A	U	B	C	B	A	
Ethylene Cyanoxyhydrin	A						
Ethylene Dibromide	A						
Ethylene Dichloride	A	U	C	U	C	A	C
Ethylene Glycol	A	A	A	A	A	A	B
Ethylene Hydrochloride	A						C
Ethylene Oxide	A* 2035/6375	U	C	U	U	U	U
Ethylene Trichloride	A	U	C	U	C	A	C
Ethylenediamine	B* 1050LF	A	A	A	U	U	C
Ethyleneimine	A						
Ethylmorpholine	A						
Ethylsulfuric Acid	A						
Fatty Acids	A	B	C	C	—	A	
Ferric Acetate	A						
Ferric Ammonium Sulfate	A						
Ferric Chloride (aq)	A	A	A	B	A	A	A
Ferric Ferrocyanide	A						
Ferric Hydroxide	A						
Ferric Nitrate (aq)	A	A	A	C	A	A	A

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Ferric Sulfate (aq)	A	A	A	B	A	A	A
Ferrous Ammonium Citrate	A						
Ferrous Ammonium Sulfate	A						
Ferrous Carbonate	A						
Ferrous Chloride	A						
Ferrous Iodide	A						
Ferrous Sulfate	A						
Ferrous Tartrate	A						
Fish Oil	A	A	U	A	A	A	
Fluorinated Cyclic Ethers	A* 4079	—	A	—	—	—	
Fluorine (Gas)	B						U
Fluorine (Liquid)	B	U	U	U	—	B	U
Fluorobenzene	A	U	U	U	B	A	
Fluoroboric Acid (Fluoboric Acid)	A* 4079/6375	A	A	—	—	—	U
Fluorocarbon Oils	B* 4079	—	A	—	—	—	
Fluoroform	A* 4079						
Fluorolube <sup>9</sup>	B* 4079	A	A	A	B	B	A
Fluorophosphoric Acid	A						
Fluorosilicic Acid	A	A	B	U	U	A	
Fluorosulfonic Acid	A						
Formaldehyde	A*	C	A	B	U	U	
Formamide	A* 4079/6375						
Formic Acid	A* 4079/6375	B	A	B	C	C	B
Freon <sup>®</sup> 22	A* 4079/6375	U	A	U	U	U	
Freon <sup>®</sup> 23	A* 4079/6375						
Fuel Oils	A	A	U	U	A	A	
Fumaric Acid	A	A	B	B	A	A	
Fuming Sulfuric Acid	A						U
Furan, Furfuran	A	U	C	—	—	—	B
Furfural (Furfuraldehyde)	A*	U	B	U	—	U	U
Furfuryl Alcohol	A						
Furoic Acid	A* 4079/6375						
Fyrquel <sup>7</sup>	A	U	A	A	C	A	U
Gallic Acid	A	B	B	—	A	A	
Gasoline	A	B	U	U	A	A	A
Gelatin	A	A	A	A	A	A	
Glauber's Salt	A	U	B	—	A	A	
Gluconic Acid	A						
Glucose	A	A	A	A	A	A	C
Glue	A	A	A	A	A	A	
Glutamic Acid	A						
Glycerin (Glycerol)	A	A	A	A	A	A	B
Glycerol Dichlorohydrin	A						
Glycerol							
Monochlorohydrin	A						
Glycerol Triacetate	A						
Glycerophosphoric Acid	A						
Glyceryl Phosphate	A						
Glycidol	A						B
Glycol Monoether	A						
Glycolic Acid	A						
Glycols	A	A	A	A	A	A	
Glyoxylic Acid	A						
Green Sulfate Liquor	A	B	A	A	B	A	
Halothane	A						U
Halowax <sup>10</sup> Oil	A	U	U	U	A	A	
Heavy Water	A						
Helium	A						A
Heptachlor	A						
Heptachlorobutene	A						
Heptaldehyde (Heptanal)	A* 4079						C

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Heptane	A						C
Heptanoic Acid	A						
Hexachloroacetone	A						
Hexachlorobutadiene	A						
Hexachlorobutene	A						
Hexachloroethane	A						
Hexaethyl Tetraphosphate	A						
Hexafluoroethane	B* 4079						
Hexafluoroxylene	A						
N-Hexaldehyde	A* 4079	U	A	B	U	U	
Hexamethyldisilazane	A						
Hexamethylene (Cyclohexane)	A						
Hexamethylene Diammonium Adipate	A						
Hexamethylene diamine	B* 1050LF						
Hexamethylenetetramine	B* 1050LF						
Hexane	A	A	U	U	A	A	A
N-Hexene-1	A	B	U	U	A	A	
Hexone (Methyl Isobutyl Ketone)	A						
Hexyl Acetate	A						
Hexyl Alcohol	A	A	C	B	B	A	A
Hexylene Glycol	A						
Hexylresorcinol	A						
HCFC 141b	A* 4079/6375						
HCFC 142b	B* 4079/6375	A	B	—	—	U	U
Hydrazine	A* 1050LF	B	A	C	U	U	U
Hydrazine							
Dihydrochloride	A						
Hydrazine Hydrate	A* 1050LF						
Hydraulic Oils (Petroleum Base)	A	A	U	C	A	A	A
Hydraulic Oils (Synthetic Base)	A						B
Hydriodic Acid	A* 4079/6375						
Hydroabietyl Alcohol	A						
Hydrobromic Acid	A	U	A	U	C	A	
Hydrobromic Acid 40%	A	U	A	U	C	A	
Hydrocarbons	A						A
Hydrochloric Acid (cold) 37%	A	C	A	C	B	A	U
Hydrochloric Acid (conc.) 37%	A						
Hydrochloric Acid (hot) 37%	A	U	C	U	C	B	U
Hydrocyanic Acid	A	B	A	C	B	A	U
Hydrofluoric Acid (Anhydrous)	A	U	C	U	U	U	U
Hydrofluoric Acid (conc.) Cold	A	U	C	U	U	A	U
Hydrofluoric Acid (conc.) Hot	A* 4079	U	U	U	U	C	U
Hydrofluosilicic Acid	A	A	B	U	U	A	U
Hydrogen Bromide (Anhydrous)	A						
Hydrogen Chloride (Anhydrous)	A						
Hydrogen Cyanide	A						U
Hydrogen Fluoride (Anhydrous)	A* 4079						
Hydrogen Gas	A	A	A	C	C	A	
Hydrogen Iodide (Anhydrous)	A						
Hydrogen Peroxide (90%)	A	U	B	B	B	B	C
Hydrogen Selenide	A						
Hydrogen Sulfide							

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
(Wet) Cold	A	U	A	C	C	U	A
Hydrogen Sulfide							
(Wet) Hot	A*	U	A	C	C	U	A
Hydroquinone	A	U	B	B	B	B	C
Hydroxycitronellal	A						
Hydroxyacetic Acid	A						
Hydyne	A						C
Hypochlorous Acid	A* 2037	U	B	—	—	A	C
Indole	A						
Insulin	A						
Iodic Acid	A						
Iodine	A						
Iodine Pentafluoride	B	U	U	U	U	U	
Iodoform	A	—	U	—	—	—	
Iso Crotyl Chloride	A						
Iso Dodecane	A						
Isoamyl Acetate	A						C
Isoamyl Butyrate	A						C
Isoamyl Valerate	A						
Isoboreol	A						
Isobutane	A						
Isobutyl Acetate	A						
Isobutyl Alcohol	A	B	A	A	B	A	B
Isobutyl Chloride	A						B
Isobutyl Methyl Ketone	A						
Isobutyl Phosphate	A						
Isobutylene	A						
Isobutyric Acid	A						
Isodecanol	A						
Isoeugenol	A						
Isooctane	A	A	U	U	A	A	
Isopentane	A						
Isophorone	A	U	C	U	U	U	
Isopropyl Acetate	A	U	B	U	U	U	B
Isopropyl Alcohol							
(Isopropanol)	A	B	A	A	B	A	B
Isopropyl Chloride	A	U	U	U	B	A	U
Isopropyl Ether	A	B	U	U	C	U	B
Isopropylacetone	A						
Isopropylamine	A* 1050LF/6375						U
Isovaleric Acid	A						C
Jet A Fuel	A						
JP 3 Fuel	A						B
JP 4 Fuel	A						B
JP 5 Fuel	A						B
JP 6 Fuel	A						B
Kerosene	A	A	U	U	A	A	B
Lacquer Solvents	A	U	U	U	U	U	A
Lacquers	A	U	U	U	U	U	A
Lactic Acid (Cold)	A	A	A	A	A	A	C
Lactic Acid (Hot)	A	U	U	B	B	A	C
Lard (Animal Fats)	A	A	B	B	A	A	
Lauric Acid	A						
Lavender Oil	A	B	U	U	B	A	
Lead (Molten)	A						
Lead Acetate	A	B	A	U	U	U	
Lead Arsenate	A						
Lead Azide	A						
Lead Bromide	A						C
Lead Carbonate	A						C
Lead Chloride	A						C
Lead Chromate	A						
Lead Dioxide	A						C
Lead Linoleate	A						
Lead Naphthenate	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Lead Nitrate	A	A	A	B	A	—	C
Lead Oxide	A						
Lead Sulfamate	A	B	A	B	A	A	A
Ligroin (Benzine/ Nitrobenzine)	A	A	U	U	A	A	A
Lime Bleach	A	A	A	B	A	A	C
Lime Sulfur	A	U	A	A	A	A	C
Lindol <sup>7</sup> (Hydraulic Fluids)	A	U	A	C	C	A	C
Linoleic Acid	A	B	U	B	—	B	C
Linseed Oil	A	A	C	A	A	A	B
Liquefied Petroleum Gas (LPG)	A	A	U	C	C	A	B
Lithium Bromide (Brine)	A						
Lithium Carbonate	A						
Lithium Chloride	A						
Lithium Citrate	A						
Lithium Hydroxide	A						
Lithium Hypochlorite	A						
Lithium Nitrate	A						
Lithium Nitrite	A						
Lithium Perchlorate	A*						
Lithium Salicylate	A						
Lithopone	A						
Lubricating Oils (Petroleum Base)	A	A	U	U	A	A	
Lubricating Oils (Synthetic Base)	A						
Lye	A	B	A	B	A	B	B
Magnesium Chloride	A	A	A	A	A	A	C
Magnesium Hydroxide	A	B	A	—	—	A	C
Magnesium Salts	A						
Magnesium Sulfate	A	A	A	A	A	A	C
Magnesium Sulfite	A						B
Magnesium Trisilicate	A						
Malathion	A						
Maleic Acid	A	U	B	—	—	A	B
Maleic Anhydride	A	U	B	—	—	U	
Maleic Hydrazide	A						
Malic Acid	A	A	B	B	A	A	
Mandelic Acid	A						
Manganese Acetate	A						
Manganese Carbonate	A						B
Manganese Dioxide	A						
Manganese Gluconate	A						
Manganese Hypophosphite	A						
Manganese Linoleate	A						
Manganese Naphthenate	A						
Manganous Chloride	A						
Manganous Phosphate	A						
Manganous Sulfate (aq)	A						
Mannitol	A						
MDI (Methylene-di-p- phenylene isocyanate)	A						
Mercaptan	A						
Mercaptobenzothiazole (MBT)	A						
Mercuric Acetate	A						
Mercuric Cyanide	A						
Mercuric Iodide	A						
Mercuric Nitrate	A						
Mercuric Sulfate	A						
Mercuric Sulfite	A						
Mercurous Nitrate	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T	Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Mercury	A	A	A	—	—	A		Methacrylic Acid	A	U	B	U	U	U	C
Mercury Chloride	A	A	A	—	—	A		Methylal	A* 4079						
Mercury Fulminate	A							Methylamine	A* 1050LF						
Mercury Salts	A							Methylamyl Acetate	A						
Mesityl Oxide	A	U	B	U	U	U	B	Methylene Bromide	A	B	U	—	A	A	C
Metacresol	A							Methylene Chloride	B	U	C	U	B	B	C
Metaldehyde	A							Methylene Iodide	A						
Metanitroaniline	A							Methylglycerol	A						
Metatoluidine	A							Methylisobutyl Carbinol	A						
Methacrylic Acid	A	U	B	U	U	U		Methylpyrrolidine	A						
Methallyl Chloride	A							Methylpyrrolidone	A						
Methane	A	A	U	U	B	A		Methylsulfuric Acid	A						
Methoxychlor	A							MIL-L-23699 Lubricants	A						
Methyl Abietate	A							MIL-L-7808 Lubricants	A						
Methyl Acetate	A	U	A	U	U	U	C	Mineral Oil	A	A	C	B	A	A	
Methyl Acetoacetate	A						B	Mixed Acids	A						
Methyl Acetophenone	A							Mobil 254 <sup>11</sup> Lubricant	A						
Methyl Acrylate	A	U	B	U	U	U	B	MobilJet II <sup>11</sup> Lubricant	A						
Methyl Alcohol (Methanol)	A	A	A	A	A	U	C	Molybdenum Oxide	A						
Methyl Amylketone	A							Molybdenum Trioxide	A						
Methyl Anthranilate	A							Molybdic Acid	A						
Methyl Benzoate	A						B	Morpholine	A						
Methyl Butyl Ketone	A	U	A	C	U	U		Motor Oils	A						B
Methyl Butyrate	A							Mustard Gas	A	—	A	A	—	—	
Cellosolve <sup>5</sup>	A							Myristic Acid	A						
Methyl Butyrate Chloride							C	Naphtha	A	B	U	U	B	A	
Methyl Carbonate	A						C	Naphthalene	A	U	U	U	A	A	B
Methyl Cellosolve <sup>5</sup>	A	C	B	U	U	U		Naphthalene Chloride	A						
Methyl Cellulose	A						C	Naphthalene Sulfonic Acid	A						
Methyl Chloride	A	U	C	U	B	B	C	Naphthalenic Acid	A	B	U	U	A	A	B
Methyl Chloroacetate	A							Naphthalonic Acid	A						
Methyl Chloroformate	A						C	Naphthenic Acid	A						
Methyl Chlorosilanes	A							Naphthylamine	A						
Methyl Cyanide (Acetonitrile)	A							Natural Gas	A	A	U	A	C	A	
Methyl Cyclohexanone	A							Neatsfoot Oil	A	A	B	B	A	A	
Methyl Cyclopentane	A	U	U	U	B	B	B	Neon	A						A
Methyl Dichloride	A							Neville Acid	A	U	B	U	B	A	A
Methyl Ether (Dimethyl Ether/ Monomethyl Ether)	A	A	U	A	A	A	B	Nickel Acetate (aq)	A	B	A	U	U	U	
Methyl Ethyl Ketone (MEK)	A	U	A	U	U	U	A	Nickel Ammonium Sulfate	A						
Methyl Ethyl Ketone Peroxide	A						C	Nickel Chloride (aq)	A	A	A	A	A	A	A
Methyl Ethyl Oleate	A							Nickel Cyanide	A						
Methyl Formate	A	U	B	—	—	—	C	Nickel Nitrate	A						
Methyl Hexyl Ketone (2-Octanone)	A							Nickel Salts	A						
Methyl Iodide	A							Nickel Sulfate (aq)	A	A	A	A	A	A	C
Methyl Isobutyl Ketone (MIBK)	A	U	B	U	U	U		Nicotinamide (Niacinamide)	A						
Methyl Isocyanate	A						C	Nicotinamide Hydro- chloride	A						
Methyl Isopropyl Ketone	A						B	Nicotine	A						
Methyl Isovalerate	A							Nicotine Sulfate	A						
Methyl Lactate	A							Niter Cake	A	A	A	A	A	A	C
Methyl Methacrylate	A	U	C	U	U	U	B	Nitric Acid (0–50%)	A* 4079/6375	U	B	B	B	A	C
Methyl Oleate	A	U	B	—	B	B		Nitric Acid (50–100%)	A* 4079/6375	U	U	U	C	C	C
Methyl Pentadiene	A							Nitric Acid, Inhibited Red Fuming	A*	U	U	U	U	U	C
Methyl Phenylacetate	A							Nitric Acid, White Fuming	B*						
Methyl Salicylate	A	U	B	—	—	—		Nitroaniline	A						
Methyl Tertiary Butyl Ether (MTBE)	A						C	Nitrobenzene	A	U	A	U	U	B	C
Methyl Valerate	A							Nitrobenzoic Acid	A						
								Nitrocellulose	A						
								Nitrochlorobenzene	A						
								Nitrochloroform	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Nitrodiethylaniline	A						
Nitrodiphenyl Ether	A						
Nitroethane	A	U	B	U	U	U	
Nitrofluorobenzene	A						
Nitrogen	A	A	A	A	A	A	A
Nitrogen Oxides	A						C
Nitrogen Peroxide	A* 2037						C
Nitrogen Tetroxide	B* 1045	U	C	U	U	U	C
Nitrogen Trifluoride	B* 4079						C
Nitroglycerine	A						
Nitroglycerol	A						
Nitroisopropylbenzene	A						
Nitromethane	A	U	B	U	U	U	
Nitrophenol	A						
Nitropropane	A						
Nitrosyl Chloride	A						
Nitrosylsulphuric Acid	A						
Nitrothiophene	A						
Nitrotoluene	A						C
Nitrous Acid	A						
Nitrous Oxide	A*						
Nonane	A						
Octachlorotoluene	A	U	U	U	B	A	
Octadecane	A	A	U	U	A	A	
Octanal	A* 4079						
N-Octane	A	B	U	U	B	A	B
Octyl Acetate	A						
Octyl Alcohol	A	B	C	B	B	A	B
Octyl Chloride	A						
Octyl Phthalate	A						
Olefins	A						
Oleic Acid	A	C	U	U	—	B	
Oleum (Fuming Sulfuric Acid)	A	B	U	U	B	A	
Oleyl Alcohol	A						
Olive Oil	A	A	B	C	A	A	C
Ortho Chloroaniline	A						
Ortho Chlorophenol	A						
Ortho Cresol	A						
Ortho Nitrotoluene	A						C
Orthophos <sup>17</sup> Acid	A						
Oxalic Acid	A	B	A	B	A	A	
Oxygen (Cold)	A* 2037	B	A	A	A	A	C
Oxygen (Hot)	A*	U	C	B	U	B	C
Ozone	A*	U	A	A	B	A	A
Paint Thinner	A	U	U	U	B	B	
Paracymene	A						
Para-Dichlorobenzene	A						U
Paraffins	A						
Para-Formaldehyde	A*						
Paraldehyde	A*						U
Para-Nitroaniline	A						
Para-Nitrobenzoic Acid	A						
Para-Nitrophenol	A						
Parathion	A						
Para-Toluene Sulfonic Acid	A						
Peanut Oil	A	A	C	A	A	A	C
Pectin (Liquor)	A						
Pelagonic Acid	A						
Penicillin (Liquid)	A						
Pentachloroethane	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Pentachlorophenol	A						
Pentaerythritol	A						
Pentaerythritol Tetranitrate	A						
Pentane	A						A
Pentoxone <sup>13</sup>	A						
Pentyl Pentanoate	A						
Peracetic Acid	A						C
Perchloric Acid	A* 4079	U	B	U	A	A	C
Perchloroethylene	A	B	U	U	B	A	B
Perfluorotriethylamine	B* 1050LF						
Permanganic Acid	A* 2037						
Persulfuric Acid (Caro's Acid)	A						C
Petrolatum	A						
Petrolatum Ether	A						
Petroleum, Crude	A* 1050LF						
Petroleum—Above 121°C (250°F)	A	U	U	U	U	B	
Petroleum—Below 121°C (250°F)	A	A	U	B	B	A	
Phenol (Carbolic Acid)	A	U	B	U	A	A	
Phenolic Sulfonate	A						
Phenolsulfonic Acid	A						
Phenyl Acetate	A						
Phenyl Ethyl Ether (Phenetole)	A	U	U	U	U	U	C
Phenyl Hydrazine	A* 1050LF	U	B	—	—	A	C
Phenylacetamide	A						
Phenylacetic Acid	A						
Phenylbenzene (Biphenyl/Diphenyl)	A	U	U	U	B	A	
Phenylene Diamine	A* 1050LF						
Phenylethyl Alcohol	A						
Phenylethyl Molonic Ester	A						
Phenylglycerine	A						
Phenylhydrazine Hydrochloride	A* 1050LF						U
Phenylmercuric Acetate	A						
Phorone (Diisopropylidene Acetone)	A	U	C	U	U	U	U
Phosgene	A						
Phosphine	A						
Phosphoric Acid, 20%	A	B	A	B	B	A	B
Phosphoric Acid, 45%	A	U	A	C	B	A	C
Phosphorus (Molten)	A						
Phosphorus Oxychloride	A						C
Phosphorus Trichloride	A	U	A	—	A	A	C
Phthalic Acid	A						
Phthalic Anhydride	A						
Pickling Solution	A	U	C	U	U	B	
Picric Acid	A	B	B	U	B	A	
Pine Oil	A	U	U	U	A	A	B
Pine Tar	A						
Pinene	A	B	U	U	B	A	
Piperazine	A* 1050LF						
Piperidine	A	U	U	U	U	U	
Plating Solution—Chrome	A	—	A	U	—	A	
Plating Solution—Others	A	A	A	U	—	A	
Polyethylene Glycol	A						
Polyglycerol	A						
Polyglycol	A						
Polyvinyl Acetate Emulsion	A	—	A	—	—	—	

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Potassium (Molten)	U						
Potassium Acetate	A	B	A	U	U	U	C
Potassium Acid Sulfate	A						
Potassium Alum	A						
Potassium Aluminum Sulfate	A						
Potassium Antimonate	A						
Potassium Bicarbonate	A						
Potassium Bichromate	A						
Potassium Bifluoride	A						B
Potassium Bisulfate	A						
Potassium Bisulfite	A						
Potassium Bitartrate	A						
Potassium Bromide	A						
Potassium Carbonate	A						
Potassium Chlorate	A						
Potassium Chloride	A	A	A	A	A	A	B
Potassium Chromates	A						
Potassium Citrate	A						
Potassium Cuprocyanide	A	A	A	A	A	A	A
Potassium Cyanate	A						
Potassium Cyanide	A	A	A	A	A	A	A
Potassium Dichromate	A	A	A	A	A	A	A
Potassium Diphosphate	A						
Potassium Ferricyanide	A						B
Potassium Fluoride	A						
Potassium Glucocyanate	A						
Potassium Hydroxide	A	B	A	C	C	U	B
Potassium Hypochlorite	A						
Potassium Iodate	A						
Potassium Iodide	A						
Potassium Metabisulfate	A						
Potassium Metasilicate	A						
Potassium Monochromate	A						
Potassium Nitrate	A	A	A	A	A	A	A
Potassium Nitrite	A						
Potassium Oxalate	A						
Potassium Perchlorate	A						
Potassium Perfluoro Acetate	A						
Potassium Permanganate	A						
Potassium Peroxide	A						
Potassium Persulfate	A						
Potassium Phosphate (Acid)	A						
Potassium Phosphate (Alkaline)	A						
Potassium Phosphate (Di/Tri Basic)	A						
Potassium Pyrosulfate	A						
Potassium Salts	A						
Potassium Silicate	A						
Potassium Sodium Tartrate	A						
Potassium Stannate	A						
Potassium Stearate	A						
Potassium Sulfate	A	A	A	A	A	A	B
Potassium Sulfide	A						
Potassium Sulfite	A						
Potassium Tartrate	A						
Potassium Thiocyanate	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Potassium Thiosulfate	A						
Potassium Triphosphate	A						
Prestone <sup>5</sup> Anti-freeze	A						
Producer Gas	A	A	U	B	B	A	U
Propane	A	A	U	U	B	A	A
Propionaldehyde	A*						
Propionic Acid	A						
Propionitrile	A						A
Propyl Acetate	A	U	B	U	U	U	C
Propyl Acetone (Methyl Butyl Ketone)	A	U	A	C	U	U	A
Propyl Alcohol	A	A	A	A	A	A	A
Propyl Nitrate	A	U	B	U	U	U	
Propyl Propionate	A						
Propylamine	A* 1050LF/6375						
Propylbenzene	A						
Propylene	A	U	U	U	B	A	B
Propylene Chloride	A						
Propylene Chlorohydrin	A						
Propylene Dichloride	A						
Propylene Glycol	A						
Propylene Imine	A* 1050LF						
Propylene Oxide	A* 2035/6375	U	B	U	U	U	
Pydraul <sup>2</sup> , 10E, 29 ELT	A	U	A	U	U	A	
Pydraul <sup>2</sup> , 30E, 50E, 65E, 90E	A	U	A	A	A	A	C
Pydraul <sup>2</sup> , 115E	A	U	A	U	C	A	C
Pydraul <sup>2</sup> , 230E, 312C, 540C	A	U	U	U	U	A	C
Pyranol <sup>12</sup> , Transformer Oil	A	A	U	U	A	A	C
Pyridine	A	U	B	U	U	U	C
Pyridine Sulfate	A						
Pyridine Sulfonic Acid	A						C
Pyrogallol (Pyrogallic Acid)	A						
Pyroligneous Acid	A	U	B	—	U	U	
Pyrosulfuric Acid	A						
Pyrosulfuryl Chloride	A* 4079						
Pyrrrole	A	U	C	B	C	U	C
Pyruvic Acid	A						
Quinidine	A						
Quinine	A						
Quinine Bisulphate	A						
Quinine Hydrochloride	A						
Quinine Sulfate	A						
Quinine Tartrate	A						
Quinizarin	A						
Quinoline	A						
Quinone	A						
Raffinate	A						
Rapeseed Oil	A	B	A	U	A	A	C
Red Oil (MIL-H-5606)	A	A	U	U	A	A	A
Resorcinol	A						
Rhodium	A						
Riboflavin	A						
Ricinoleic Acid	A						
RJ-1 (MIL-F-25558 B)	A	A	U	U	A	A	
Rosin	A						
RP-1 (MIL-H-25576 C)	A	A	U	U	A	A	A
Saccharin Solution	A						
Sal Ammoniac	A	A	A	B	A	A	
Salicylic Acid	A	B	A	—	A	A	
Salt Water	A*	A	A	A	A	A	
Sebacic Acid	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Secondary Butyl Alcohol	A						
Selenic Acid	A						
Selenous Acid	A						
Sewage	A*						
Shellac	A						
Silane	A						
Silicate Esters	A	B	U	U	A	A	
Silicon Fluoride	A						
Silicone Greases	A	A	A	C	A	A	
Silicone Oils	A	A	A	C	A	A	A
Silicone Tetrachloride (Dry)	A						
Silicone Tetrachloride (Wet)	A						B
Silicone Tetrafluoride	A* 4079						B
Silver Bromide	A						
Silver Chloride	A						
Silver Cyanide	A						
Silver Nitrate	A	B	A	A	A	A	
Silver Sulfate	A						
Skydrol <sup>2</sup> 500	A	U	A	C	C	U	
Skydrol <sup>2</sup> 7000	A	U	A	C	C	B	
Soap Solutions	A	A	A	A	A	A	
Soda Ash	A	A	A	A	A	A	
Sodium (molten)	U						
Sodium Acetate	A	B	A	U	U	U	U
Sodium Acid Bisulfate	A						
Sodium Acid Fluoride	A						
Sodium Acid Sulfate	A						
Sodium Aluminate	A						B
Sodium Aluminate Sulfate	A						
Sodium Anthraquinone Disulfate	A						
Sodium Antimonate	A						
Sodium Arsenate	A						
Sodium Arsenite	A						
Sodium Benzoate	A						
Sodium Bicarbonate	A	A	A	A	A	A	C
Sodium Bichromate	A						B
Sodium Bifluoride	A						
Sodium Bisulfate	A						C
Sodium Bisulfide	A						C
Sodium Bisulfite	A	A	A	A	A	A	C
Sodium Bitartrate	A						
Sodium Borate	A	A	A	A	A	A	
Sodium Bromate	A						
Sodium Bromide	A						
Sodium Carbonate (Soda Ash)	A						C
Sodium Chlorate	A						
Sodium Chloride	A	A	A	A	A	A	C
Sodium Chlorite	A						B
Sodium Chloroacetate	A						
Sodium Chromate	A						B
Sodium Citrate	A						
Sodium Cyanamide	A						C
Sodium Cyanate	A						
Sodium Cyanide	A	A	A	A	A	A	A
Sodium Diacetate	A						
Sodium Diphenyl Sulfonate	A						
Sodium Diphosphate	A						
Sodium Disilicate	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Sodium Ethylate	A						
Sodium Ferricyanide	A						
Sodium Ferrocyanide	A						A
Sodium Fluoride	A						B
Sodium Fluosilicate	A						
Sodium Glutamate	A						
Sodium Hydride	A						
Sodium Hydrogen Sulfate	A						B
Sodium Hydrosulfide	A						
Sodium Hydrosulfite	A						
Sodium Hydroxide	A	B	A	B	B	B	C
Sodium Hypochlorite	A	B	B	B	B	A	C
Sodium Hypophosphate	A						
Sodium Hypophosphite	A						
Sodium Hyposulfite	A						B
Sodium Iodide	A						
Sodium Lactate	A						
Sodium Metaphosphate	A	A	A	—	A	A	
Sodium Metasilicate	A						B
Sodium Methylate	A						
Sodium Monophosphate	A						
Sodium Nitrate	A	B	A	U	—	—	B
Sodium Oleate	A						
Sodium Orthosilicate	A						
Sodium Oxalate	A						
Sodium Perborate	A	B	A	B	A	A	B
Sodium Percarbonate	A						
Sodium Perchlorate	A						
Sodium Peroxide	A	B	A	U	A	A	
Sodium Persulfate	A						
Sodium Phenolate	A						
Sodium Phenoxide	A						
Sodium Phosphate	A	A	A	U	—	A	B
Sodium Plumbite	A						
Sodium Pyrophosphate	A						
Sodium Resinate	A						
Sodium Salicylate	A						
Sodium Salts	A						
Sodium Sesquisilicate	A						
Sodium Silicate	A	A	A	—	—	—	B
Sodium Silicofluoride	A						
Sodium Stannate	A						
Sodium Sulfate	A	A	A	A	A	A	A
Sodium Sulfide	A						B
Sodium Sulfite	A						
Sodium Sulfocyanide	A						B
Sodium Tartrate	A						
Sodium Tetraborate	A						B
Sodium Tetrakisphosphate	A						
Sodium Tetrasulfide	A						
Sodium Thioarsenate	A						
Sodium Thiocyanate	A						
Sodium Thiosulfate	A	B	A	A	A	A	B
Sodium Trichloroacetate	A						
Sodium Triphosphate	A						
SOLVESCO <sup>14</sup> 100, 150	A						
Sorbitol	A						
Sour Crude Oil	A* 1050LF						
Sour Natural Gas	A* 1050LF						
Soybean Oil	A	A	C	A	A	A	

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T	Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Stannic Ammonium Chloride	A							Tertiary Amyl Methyl Ether (TAME)	A						
Stannic Chloride (aq)	A	A	A	B	A	A		Tertiary Butyl Alcohol	A	B	B	B	B	A	C
Stannic Tetrachloride	A							Tertiary Butyl Catechol	A	U	B	—	A	A	C
Stannous Bisulfate	A							Tertiary Butyl Mercaptan	A	U	U	U	—	A	A
Stannous Bromide	A							Tetrabromoethane	A	U	U	U	B	A	A
Stannous Chloride (aq)	A	A	A	B	A	A	B	Tetrabromomethane	A	U	U	U	B	A	A
Stannous Fluoride	A						B	Tetrabutyl Titanate	A	B	A	—	A	A	
Stannous Sulfate	A							Tetrachloroethylene	A	U	U	U	B	A	C
Stauffer <sup>7</sup> 7700	A						A	Tetraethyl Lead	A	B	U	—	B	A	A
Steam Above 149°C (300°F)	A* 6375	U	C	U	U	U	C	Tetrafluoromethane	B* 4079						A
Steam Below 149°C (300°F)	A* 6375	U	A	C	U	U		Tetrahydrofuran	A	U	C	U	U	U	A
Stearic Acid	A	B	B	B	—	—	B	Tetramethyl Ammonium Hydroxide	A*						
Stoddard Solvent	A	A	U	U	A	A	B	Tetramethyl-dihydropyridine	A						
Strontium Acetate	A							Tetraphosphoglucosate	A						
Strontium Carbonate	A							Tetraphosphoric Acid	A						
Strontium Chloride	A							Therminol <sup>2</sup> 55	A						
Strontium Hydroxide	A							Therminol <sup>2</sup> 66	A						
Strontium Nitrate (aq)	A							Therminol <sup>2</sup> FR	A						
Styrene	A* 3018	U	U	U	C	B	C	Thio Acid Chloride	A						
Succinic Acid	A							Thioamyl Alcohol	A						
Sucrose Solution	A	A	A	A	A	A	C	Thiodiacetic Acid	A						
Sulfamic Acid	A							Thioethanol	A						
Sulfanilic Acid	A							Thioglycolic Acid	A						
Sulfanilic Chloride	A							Thionyl Chloride	A	U	C	—	—	B	
Sulfanilimide	A							Thiophene (Thiofuran)	A						
Sulfite Liquors	A	B	B	U	B	A		Thiophosphoryl Chloride	A						
Sulfonic Acid	A							Thiourea	A						
Sulfur	A	U	A	C	A	A	C	Thorium Nitrate	A						
Sulfur Chloride	A	C	U	C	A	A	C	Tin Ammonium Chloride	A						
Sulfur Dioxide (Dry)	A	U	A	B	B	A	C	Tin Chloride	A						
Sulfur Dioxide (Liquified)	A	U	A	B	B	A	C	Tin Tetrachloride	A						
Sulfur Dioxide (Wet)	A	U	A	B	B	A	C	Titanic Acid	A						
Sulfur Hexafluoride	B* 4079	B	B	B	B	B		Titanium Dioxide	A						
Sulfur Monochloride	A							Titanium Sulfate	A						
Sulfur Trioxide	A	U	B	B	B	A		Titanium Tetrachloride	B* 4079	B	U	U	B	B	B
Sulfuric Acid (Conc.)	A	U	C	U	U	A		Toluene	A	U	U	U	B	A	A
Sulfuric Acid (Dilute)	A	C	B	U	C	A		Toluene Bisodium Sulfite	A						
Sulfuric Acid (20% Oleum)	A	U	U	U	U	A		Toluene Diisocyanate (TDI)	A	U	B	U	U	U	C
Sulfurous Acid	A	B	B	U	—	A		Toluene Sulphonyl Chloride	A						C
Sulfuryl Chloride	A						C	Toluenesulphonic Acid	A						
Sulphonated Oils	A							Toluidine	A						
Sulphonyl Chloride	B* 4079						C	Toluol	A						
Sulphuric Chlorohydrin (Chlorosulfonic Acid)	A						C	Toluquinone	A						
Suva <sup>®</sup> 32 <sup>6</sup>	B* 4079	A	A	—	—	U		Tolylaldehyde	A						
Suva <sup>®</sup> 116 <sup>6</sup>	B* 4079							Transformer Oil	A	A	U	B	A	A	
Suva <sup>®</sup> 123 <sup>6</sup>	C* 4079							Transmission Fluid Type A	A	A	U	B	A	A	
Suva <sup>®</sup> 124 <sup>6</sup>	B* 4079							Triacetin	A	B	A	—	U	U	
Suva <sup>®</sup> 134a <sup>6</sup>	A* 6375							Triaryl Phosphate	A	U	A	C	B	A	
Suva <sup>®</sup> 152a	B* 4079	A	A	—	—	U		Tribromomethylbenzene	A						
Tallow	A							Tributoxyethyl Phosphate	A	U	A	—	B	A	A
Tannic Acid (Tannin)	A	A	A	B	—	A	A	Tributyl Citrate	A						
Tar, Bituminous	A	B	C	B	A	A		Tributyl Mercaptan	A	U	U	U	C	A	C
Tartaric Acid	A	A	B	A	A	A	C	Tributyl Phosphate	A	U	B	U	U	U	B
TDI (Toluene Diisocyanate)	A	U	B	U	U	U	C	Tributylamine	A* 1050LF						
Tellone <sup>®</sup> II	A							Trichloroacetic Acid	A* 6375	B	B	—	U	C	
Terephthalic Acid	A							Trichloroacetyl Chloride	A						
Terpineol	A	B	C	—	A	A	A	Trichlorobenzene	A						
Terpinyl Acetate	A							Trichloroethane	A	U	U	U	B	A	C

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Trichloroethanolamine	A* 1050LF						C
Trichloroethylene	A	U	U	U	B	A	
Trichlorofluoromethane	B* 4079						
Trichloromethane	A						C
Trichloronitromethane (Chloropicrin)	A						
Trichlorophenylsilane	A						
Trichloropropane	A						
Trichlorotrifluoroethane	B* 4079						
Tricresyl Phosphate	A	U	U	C	B	A	
Triethanolamine (TEA)	A* 1050LF	B	A	—	U	U	
Triethyl Phosphate	A						B
Triethylaluminum	A	U	C	—	—	B	
Triethylamine	A* 1050LF						
Triethylborane	A	U	C	—	—	A	
Triethylene Glycol	A						
Triethylenetetramine	A* 1050LF						
Trifluoroacetic Acid	A* 6375						
Trifluorochloroethylene	B* 4079						
Trifluoromethane (Freon® 23)	A* 4079						
Trifluorovinylchloride	A						
Triisopropylbenzyl- chloride	A						
Trimethylamine	A* 1050LF						
Trimethylbenzene	A						
Trimethylpentane	A						
Trinitrotoluene	A	U	U	—	B	B	B
Trioctyl Phosphate	A	U	A	C	B	B	B
Triphenylphosphite	A						
Tripotassium Phosphate	A						
Trisodium Phosphate	A						
Tritium	A						
Tung Oil (China Wood Oil)	A	A	C	U	B	A	
Tungsten Hexafluoride	B* 4079						
Tungstic Acid	A						
Turbine Oils	A	B	U	U	B	A	A
Turpentine	A	A	U	U	B	A	B
Ucon® Lubricants/Fluids	A						
Undecylenic Acid	A						
Undecylic Acid	A						
Unsymmetrical Dimethyl Hydrazine (UDMH)	A* 1050LF	B	A	U	U	U	
Uranium Hexafluoride	B* 4079						
Uranium Sulfate	A						
Uric Acid	A						
Valeraldehyde	A*						
Valeric Acid	A						
Vanadium Oxide	A						
Vanadium Pentoxide	A						

Chemical	Kalrez®	NBR	EPDM	VMQ	FVMQ	FKM	T
Vanilla Extract	A* 6375						
Varnish	A	B	U	U	B	A	
Vegetable Oils	A	A	C	B	A	A	
Versilube F-50	A	A	A	C	A	A	
Vinegar	A	B	A	A	C	A	
Vinyl Acetate	A						C
Vinyl Benzene	A						
Vinyl Benzoate	A						
Vinyl Chloride	A	U	U	—	—	A	
Vinyl Fluoride	A						
Vinylidene Chloride	A						
Vinylpyridine	A						
Vitriol (White)	A						
Wagner 21B Brake Fluid	A	C	A	C	U	U	
Water (Cold)	A	A	A	A	A	A	
Water (Hot)	A* 6375						
White Oil	A	A	U	U	A	A	A
White Pine Oil	A	B	U	U	A	A	
Wood Alcohol (Methanol)	A						
Wood Oil	A	A	U	U	B	A	B
Xenon	A						A
Xylene	A	U	U	U	A	A	B
Xylidine (Di-methyl Aniline)	A	C	B	U	U	U	C
Xylol	A						
Zeolites	A	A	A	—	A	A	
Zinc Acetate	A	B	A	U	U	U	C
Zinc Ammonium Chloride	A						
Zinc Chloride	A	A	A	A	A	A	B
Zinc Chromate	A						
Zinc Cyanide	A						
Zinc Diethyl-di- thiocarbamate	A						
Zinc Dihydrogen Phosphate	A						
Zinc Fluorosilicate	A						
Zinc Hydrosulfite	A						
Zinc Naphthenate	A						
Zinc Nitrate	A						
Zinc Oxide	A						
Zinc Phenolsulfonate	A						
Zinc Phosphate	A						
Zinc Salts	A						C
Zinc Silicofluoride	A						
Zinc Stearate	A						
Zinc Sulfate	A	A	A	A	A	A	C
Zinc Sulfide	A						
Zirconium Nitrate	A						C

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- <sup>1</sup>Andersol Company, E. Hanover, NJ
- <sup>2</sup>Monsanto
- <sup>3</sup>American Society for Testing and Materials
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- <sup>5</sup>Union Carbide Corp.
- <sup>6</sup>DuPont Company
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- <sup>8</sup>Dow Chemical

<sup>9</sup>Occidental Chemical Company

- <sup>10</sup>Koppers Company
- <sup>11</sup>Mobil Corp.
- <sup>12</sup>General Electric
- <sup>13</sup>Shell Chemical
- <sup>14</sup>Exxon
- <sup>15</sup>Wormald U.S., Inc.
- <sup>16</sup>The Clorox Company
- <sup>17</sup>Chevron Chemical Company

# Kalrez<sup>®</sup> KVSP<sup>™</sup> chemical compatibility resists chemical attack from all chemicals listed under the Clean Air Act.

The Kalrez<sup>®</sup> valve stem packing systems (KVSP) are virtually unaffected by over 1800 chemicals and solvents . . . from acetone to sulfuric acid, from heat transfer fluids to steam service. The Kalrez valve stem packing systems are based on using component materials with chemical resistance similar to DuPont Teflon<sup>®</sup> and as such resist chemical attack and can handle temperatures to 288°C (550°F).

Kalrez is an elastomeric derivative of Teflon, using the same base monomer as Teflon TFE as part of its chemical structure. Kalrez provides a unique balance of nearly universal chemical resistance and high temperature stability combined with the memory and sealing characteristics of a rubber.

The Environmental Protection Agency (EPA) regulations include the volatile hazardous air pollutants (VHAPs) under Appendix A and extend through the five production process category groups listed under Appendix B.

## Appendix A: Volatile Hazardous Air Pollutants

Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number
Acetaldehyde	75070	3,3'-Dimethoxybenzidine	119904	Methylene diphenyl diisocyanate (MDI)	101688
Acetamide	60355	Dimethyl aminoazobenzene	60117	4,4'-Methylenedianiline	101779
Acetonitrile	75058	3,3'-Dimethyl benzidine	119937	Naphthalene	91203
Acetophenone	98862	Dimethyl carbamoyl chloride	79447	Nitrobenzene	98953
2-Acetylaminofluorine	53963	Dimethyl formamide	68122	4-Nitrobiphenyl	92933
Acrolein	107028	Dimethyl hydrazine	57147	4-Nitrophenol	100027
Acrylamide	79061	Dimethyl phthalate	131113	2-Nitropropane	79469
Acrylic acid	79107	Dimethyl sulfate	77781	N-Nitroso-N-methylurea	684935
Acrylonitrile	107131	4,6-Dinitro-o-cresol, and salts	534521	N-Nitrosodimethylamine	62759
Allyl chloride	107051	2,4-Dinitrophenol	51285	N-Nitrosomorpholine	59892
4-Aminobiphenyl	92671	2,4-Dinitrotoluene	121142	Phenol	108952
Aniline	62533	1,4-Dioxane		p-Phenylenediamine	106503
o-Anisidine	90040	(1,4-Diethyleneoxide)	123911	Phosogene	75445
Benzene	71432	1,2-Diphenylhydrazine	122667	Phthalic anhydride	85449
Benzidine	92875	Epichlorohydrin		Polychlorinated biphenyls (Aroclors)	1336363
Benzotrichloride	98077	(1-Chloro-2,3-epoxypropane)	106898	1,3-Propane sultone	1120714
Benzyl chloride	100447	1,2-Epoxybutane	106887	beta-Propiolactone	57578
Biphenyl	92524	Ethyl acrylate	140885	Propionaldehyde	123386
Bis (2-ethylhexyl)phthalate (DEHP)	117817	Ethyl benzene	100414	Propoxur (Baygon)	114261
Bis (chlormethyl)ether	542881	Ethyl carbamate (Urethane)	51796	Propylene dichloride (1-2-dichloropropane)	78875
Bromoform	75252	Ethyl chloride (Chloroethane)	75003	Propylene oxide	75569
1,3-Butadiene	106990	Ethylene dibromide (Dibromoethane)	106934	1,2-Propylenimine (2-Methyl aziridine)	75558
Caprolactam	105602	Ethylene dichloride (1,2-Dichloroethane)	107062	Quinone	106514
Carbon disulfide	75150	Ethylene glycol	107211	Styrene	100425
Carbon tetrachloride	56235	Ethylene oxide	75218	Styrene oxide	96093
Carbonyl sulfide	463581	Ethylene thiourea	96457	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016
Catechol	120809	Ethylidene dichloride (1,1-dichloroethane)	75343	1,1,2,2-Tetrachloroethane	79345
Chloroacetic acid	79118	Formaldehyde	50000	Tetrachloroethylene (Perchloroethylene)	127184
2-Chloroacetophenone	532274	Glycol ethers	0	Toluene	108883
Chlorobenzene	108907	Hexachlorobenzene	118741	2,4-Toluene diamine	95807
Chloroform	67663	Hexachlorobutadiene	87683	2,4-Toluene diisocyanate	584849
Chloromethyl methyl ether	107302	Hexachloroethane	67721	o-Toluidine	95534
Chloroprene	126998	Hexamethylene-1,6-diisocyanate	822060	1,2,4-Trichlorobenzene	120821
Cresols/Cresylic acid (isomers and mixture)	319773	Hexamethylphosphoramide	680319	1,1,2-Trichloroethane	79005
Cresols/Cresylic acid (isomers and mixture)	95487	Hexane	110543	Trichloroethylene	79016
Cresols/Cresylic acid (isomers and mixture)	108394	Hydrazine	302012	2,4,5-Trichlorophenol	95954
Cresols/Cresylic acid (isomers and mixture)	106445	Hydroquinone	123319	2,4,6-Trichlorophenol	88062
Cumene	98828	Isophorone	78591	Triethylamine	121448
2,4-D, salts and esters	94757	Maleic anhydride	108316	Trifluralin	1582098
DDE	3547044	Methanol	67561	2,2,4-Trimethylpentane	540841
Diazomethane	334883	Methyl bromide (Bromomethane)	74839	Vinyl acetate	108054
Dibenzofurans	132649	Methyl chloride (Chloromethane)	74873	Vinyl bromide	593602
1,2-Dibromo-3-chloropropane	96128	Methyl chloroform (1,1,1-Trichloroethane)	71556	Vinyl chloride	75014
Dibutylphthalate	84742	Methyl iodide (Iodomethane)	74884	Vinylidene chloride (1,1-Dichloroethylene)	75354
1,4-Dichlorobenzene(p)	106467	Methyl isobutyl ketone (Hexone)	108101	Xylenes (isomers and mixture)	1330207
3,3-Dichlorobenzidine	91941	Methyl isocyanate	624839	Xylenes (isomers and mixture)	95476
Dichloroethyl ether (bis[2-chloroethyl]ether)	111444	Methyl methacrylate	80626	Xylenes (isomers and mixture)	108383
1,3-Dichloropropene	542756	Methyl tert butyl ether	1634044	Xylenes (isomers and mixture)	106423
Diethanolamine	111422	4,4-Methylene bis (2-chloroaniline)	101144		
N,N-Diethyl aniline (N,N-Dimethylaniline)	121697	Methylene chloride (Dichloromethane)	75092		
Diethyl sulfate	64675				

Appendix B:  
Hazardous Organic Chemical Production Processes

Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number
<b>Group I</b>					
1-Chloro-3-nitrobenzene	121733	Ethanolamines (all isomers)	141435	Triethylene glycol	112276
Acetone	67641	Ethyl benzene	100414	Triethylene glycol dimethyl ether (Glycol ether)	112492
Acetonitrile	75058	Ethylene carbonate	96491	Triethylene glycol monomethyl ether	112356
Acetophenone	98862	Ethylene dibromide (Dibromoethane) (EDB)	106934	Trimethylpropane	77996
Acrylamide	79061	Ethylene glycol	107211	Vinyl chloride (Chloro ethylene)	75014
Acrylonitrile	107131	Ethylene glycol diacetate	111557	Xylenes (mixtures)	1330207
Adiponitrile	111693	Ethylene glycol diethyl ether	6299141	Xylenes (o-isomer)	95476
Allyl alcohol	107186	Ethylene glycol dimethyl ether (Glycol ether)	110714	Xylenes (p-isomer)	106423
Aminophenol (p-isomer)	123308	Ethylene glycol monobutyl ether acetate (Glycol ether)	112072	<b>Group II</b>	
Aniline	62533	Ethylene glycol monobutyl ether (Glycol ether)	111762	Acetaldehyde	75070
Azobenzene	103333	Ethylene glycol monoethyl ether acetate (Glycol ether)	2511159	Acetaldol	107891
Benzene	71432	Ethylene glycol monoethyl ether (Glycol ether)	110805	Acetamide	60355
Benzenedisulfonic acid	98486	Ethylene glycol monomethyl ether acetate (Glycol ether)	110496	Acetanilide	103844
Benzenesulfonic acid	98113	Ethylene glycol monomethyl ether (Glycol ether)	109864	Acetic acid	64197
Benzidine	92875	Ethylene glycol monophenyl ether (Glycol ether)	122996	Acetic anhydride	108247
Benzophenone (POM)	119619	Ethylene glycol monopropyl ether (Glycol ether)	2807309	Acetyl chloride	75365
Biphenyl	92524	Ethylene oxide	75218	Aminoethylethanolamine	111411
Bis (Chloromethyl)Ether	542881	Formaldehyde	50000	Anisidine (o-isomer)	90040
Bromobenzene	10861	Fumaric acid	110178	Butadiene (1,3-isomer)	106990
Butanediol (1,4-isomer)	110634	Hexamethylenetetramine	100970	Butyl acetate (n-isomer)	123864
Butyrolactone	96480	Hydroquinone	123319	Butyl alcohol (n-isomer)	71363
Carbon tetrachloride	56235	Isopropylamine	75310	Butylamine (n-isomer)	109739
Chloroacetophone (2-isomer)	532274	Linear alkylbenzene (Linear dodecylbenzene)	123013	Butylene glycol (1,3-isomer)	107880
Chloroaniline (o-isomer)	95512	Maleic acid	110167	Butyraldehyde (n-isomer)	123728
Chlorobenzene	108907	Maleic anhydride	108316	Butyric acid	107926
Chlorodifluoromethane	25497294	Maleic hydrazide	123331	Caprolactam	105602
Chloroform	67663	Malic acid	6915157	Carbon tetrabromide	558134
Chloronitrobenzene (o-isomer)	88733	Metanilic acid	121471	Carbon tetrafluoride	75730
Chloronitrobenzene (p-isomer)	100005	Methionine	63683	Chloral	75876
Cumene hydroperoxide	80159	Methylene chloride (Dichloromethane)	75092	Chloroacetic acid	79118
Cumene (Isopropyl benzene)	98828	Methylene dianiline (4,4-isomer) (MDA)	101779	Chloroaniline (m-isomer)	108429
Cyclohexane	110827	Methylstyrene (a-isomer)	98839	Chloroaniline (p-isomer)	106478
Cyclohexanol	108930	Morpholine	110918	Chlorophenol (m-isomer)	108430
Cyclohexanone	108941	Nitroaniline (o-isomer)	88744	Chlorophenol (p-isomer)	106489
Cyclohexene	110838	Nitroaniline (p-isomer)	100016	Chloroprene (2-Chloro-1,3-Butadiene)	126998
Dichloroaniline (all isomers)	95761	Nitrobenzene	98953	Chlorotrifluoromethane	75729
Dichlorobenzene		Octene-1	111660	Crontoaldehyde	4170300
(1,4-isomer) (PDB)	106467	Paraformaldehyde	9002817	Crotonic acid	3724650
Dichlorobenzene (m-isomer)	541731	Pentaerythritol	115775	Cyanoacetic acid (CN compound)	372098
Dichlorobenzene (o-isomer)	95501	Perchloroethylene (Tetrachloroethylene)	127184	Cyclooctadiene	111784
Dichlorobenzidine (3,3-isomer)	1331471	Phenylenediamine (o-isomer)	95545	Cyclooctadiene (1,5-isomer)	1552121
Dichloroethane (1,2-isomer) (EDC)	107062	Phenylenediamine (p-isomer)	106503	Dichloro-1-butene (3,4-isomer)	760236
Dichloroethyl ether (bis[2-chloroethyl]ether)	111444	Piperazine	110850	Dichloroethylene (1,4-isomer)	540590
Dichlorodifluoromethane	75718	Propiolactone (b-isomer)	57578	Dichloropropene (1,3-isomer)	542756
Diethanolamine	111422	Propionic acid	79094	Diethyl sulfate	64675
Diethylene glycol	111466	Propylene glycol	57556	Dimethyl benzidine (3,3-isomer)	119937
Diethylene glycol dibutyl ether	112732	Propylene glycol monomethyl ether	107982	Dimethyl formamide (NN-isomer) (DMF)	68122
Diethylene glycol diethyl ether (Glycol ether)	112367	Propylene oxide	75569	Dimethyl hydrazine (1,1-isomer)	57147
Diethylene glycol dimethyl ether (Glycol ether)	111966	Resorcinol	108463	Dimethyl terephthalate	120616
Diethylene glycol monobutyl ether acetate	124174	Styrene (Vinyl benzene)	100425	Ethyl acetate	141786
Diethylene glycol monobutyl ether acetate (Glycol ether)	124177	Succinic acid	110156	Ethyl acetoacetate	141979
Diethylene glycol monobutyl ether (Glycol ether)	112345	Succinonitrile	110612	Ethyl acrylate	140885
Diethylene glycol monoethyl ether acetate (Glycol ether)	112152	Tartaric acid	526830	Ethyl chloroacetate	105395
Diethylene glycol monoethyl ether (Glycol ether)	111900	Tetrachlorobenzene (1,2,3,5-isomer)	634902	Ethyl sodium oxalacetate	41892711
Diethylene glycol monomethyl ether (Glycol ether)	111773	Tetrachlorobenzene (1,2,4,5-isomer)	95943	Ethylene imine (Aziridine)	151564
Dimethyl sulfate	77781	Tetraethylene glycol	112607	Ethylenediamine	107153
Dimethylaminoethanol (2-isomer)	108010	Tetrahydrofuran	109999	Ethylhexanol (2-isomer)	104767
Dinitrobenzenes	25154545	Toluene	108883	Ethylhexyl acrylate (2-isomer)	103117
Dioxide (1,4-Diethyleneoxide)	123911	Trichlorobenzene (a,2,4-isomer)	102821	Formamide	75127
Dioxilane	646060	Trichloroethylene	79016	Formic acid	64186
Diphenyl methane	101815	Trichlorofluoromethane	75694	Glycerol	56815
Diphenyl oxide (POM)	101848	Trichlorotrifluoroethane	76131	Glycerol dichlorohydrin	26545737
Dipropylene glycol	25265718	Trichlorophenol (2,4,5-isomer)	95954	Glycerol triether	25791962
Dodecylbenzene (n-isomer)	121013	Triethanolamine	102716	Glycine	56406
Epichlorohydrin (1-Chloro- 2,3-epoxypropane)	106898			Glyoxal	107222
				Hexachlorobenzene	118741

Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number
Hexachlorobutadiene	87683	Cresol (m-isomer)	108394	Tetrachlorophthalic anhydride	117088
Hexachloroethane	67721	Cresols cresylic acid (mixed)	1319773	Toluenesulfonamide	1333079
Hexadiene (1,4-isomer)	592450	Cresols (o-isomer)	95487	Toluenesulfonic acids (all isomers)	104154
Hexamethylenediamine	124094	Cresols (p-isomer)	106445	Toluenesulfonyl chloride	98599
Methyl formate	107313	Cyclohexylamine	108918	Trichloroaniline (2,4,6-isomer)	634935
Methyl phenol carbinol	98851	Diallyl isophthalate	1087214	Vinyl toluene	25013154
m-Nitroaniline	99092	Diaminobenzoic acid	27576041	Xylene sulfonic acid	25321419
Nitropropane	79469	Dichlorophenol (2,4-isomer)	120832	Xylidine	1300738
Paraldehyde	123637	Dicyclohexylamine (Ciclohexylamine)	101837	<b>Group IV</b>	
Peracetic acid	79210	Diethylaniline (N,N-isomer)	91667	Acrolein	107028
Picoline (b-isomer)	108996	Diethyl phthalate	84662	Acrylic acid	79107
Piperadine	110894	Diisodecyl phthalate	26761400	Allyl chloride	107051
Pyridine	110861	Dimethyl phthalate	131113	Allyl cyanide	109751
Sebacic acid	111206	Dimethylaniline-N,N		Ammonium thiocyanate	1762954
Sodium acetate	127093	(N,N-diethylaniline)	121697	Bromonaphthalene (POM)	27497514
Sodium chloroacetate	3926623	Dinitrobenzoic acid (3,5-isomer)	99343	Butyronitrile	109740
Sorbic acid	110441	Dinitrophenol (2,4-isomer)	51285	Carbon disulfide	75150
Sulfolane	126330	Dinitrotoluene (2,4-isomer) (DNT)	121142	Chloronaphthalene (POM)	25586430
Terephthalic acid	100210	Di-o-tolylguanidine	97392	Decahydronaphthalate	91178
Tetrachloroethane (1,1,2,2-isomer)	79345	Diphenyl thiourea (POM)	102089	Diallyl Phthalate	131179
Tetrahydrophthalic anhydride	85438	Diphenylamine (POM)	122394	Diethylamine	109897
Tetramethylenediamine	110601	Dodecylphenol	27193868	Dimethyl ether-N,N	115106
Toluene 2,4 diamine	95807	Ethylaniline (N-isomer)	103695	Dimethyl sulfide	75183
Toluene 2,4 diisocyanate	584849	Ethylaniline (o-isomer)	578541	Dimethyl sulfoxide	67685
Toluene diisocyanates (mixture)	26471625	Hydroxybenzoic acid (p-isomer)	99967	Dimethylamine	124403
Toluidine (o-isomer)	95534	Isophthalic acid	121915	Ethyl chloride (Chloroethane)	75003
Trichloroethane (1,1,1-isomer)	71556	Isopropylphenol	25168063	Glutaraldehyde	111308
Trichloroethane (1,1,2-isomer)		m-Chlorophenol	108430	Hexanetriol (1,2,6-isomer)	10694
(vinyl trichloride)	79005	Methylaniline (n-isomer)	100618	Isophorone	78591
Vinyl acetate	108054	Methylcyclohexane	108872	Isopropyl acetate	108214
Vinylcyclohexene (4-isomer)	100403	Methylcyclohexanone	1331222	Methanol	67561
Vinylidene chloride		Methylene diphenyl diisocyanate		Methyl acetate	79209
(1,1-Dichloroethylene)	75354	(MDI)	101688	Methyl acetoacetate	105453
<b>Group III</b>		m-Xylene	108383	Methyl bromide (Bromomethane)	74839
Acetoacetanilide	102012	Nitroaniline (m-isomer)	99092	Methyl chloride (Chloromethane)	74873
Adipic acid	124049	Nitroanisole (o-isomer)	91236	Methyl hydrazine	60344
Aminobenzoic acid	132115	Nitroanisole (p-isomer)	100174	Methyl isobutyl carbinol	108112
Aniline hydrochloride	142041	Nitrobenzoic acid		Methyl isobutyl ketone (Hexone)	108101
Anisole	100663	(o-, m-, & p-isomers)	27178832	Methyl isocyanate	624839
Anthranilic acid	118923	Nitrophenol (4-isomer)	108027	Methyl mercaptan	74931
Anthraquinone (POM)	84651	Nitrophenol (o-isomer)		Methyl methacrylate	80626
Benzaldehyde	100527	(2-Nitrophenol)	88755	Methylamine	74895
Benzamide	55210	Nitrotoluene	1321126	Naphthalene	91203
Benzil (POM)	134816	Nitrotoluene (2-isomer)	88722	Naphthalene sulfonic acid	
Benzilic acid (POM)	76937	Nitrotoluene (3-isomer)	99081	(a-isomer) (POM)	85472
Benzoic acid	65850	Nitrotoluene (4-isomer)	99990	Naphthalene sulfonic acid	
Benzoin (POM)	119539	Octylphenol	27193288	(b-isomer) (POM)	120183
Benzonitrile	100470	Pentachlorophenol	87865	Naphthol (a-isomer) (POM)	90153
Benzotrithloride	98077	Phenetidine (o-isomer)	94702	Naphthol (b-isomer) (POM)	135193
Benzoyl chloride	96884	Phenetidine (p-isomer)	156434	Nitronaphthalene (1-isomer)	86577
Benzyl acetate	140114	Phenol	108952	Perchloromethyl mercaptan	594423
Benzyl alcohol	100516	Phenolphthalein	77098	Phosgene	75445
Benzyl benzoate (POM)	120514	Phenolsulfonic acids (all isomers)	98679	Propionaldehyde	123386
Benzyl chloride	100447	Phenyl anthranilic acid	91407	Propyl alcohol (n-isomer)	71238
Benzyl dichloride	96873	Phloroglucinol	108736	Propyl chloride	540545
Benzylamine	100469	Phthalic acid	88993	Propylamine	107108
Bisphenol A (POM)	80057	Phthalic anhydride	85449	Propylene dichloride	
Butylbenzyl phthalate	85687	Phthalimide	85416	(1,2-Dichloropropane)	78875
Chlorobenzaldehyde	35913098	Phthalonitrile	91156	Sodium methoxide	124414
Chlorobenzoic acid (all isomers)	118912	p-tert-butyl toluene	98511	Tetraethyl lead	78002
Chlorobenzotrithloride (all isomers)	2136814	Quinone	106514	Tetrahydronaphthalene (Tetralin)	
Chlorobenzoyl chloride	1321035	Salicylic acid	69727	(POM)	119642
Chlorophenol (o-isomer)	95578	Sodium benzoate	532321	Triethylamine	121448
Chlorotoluene (m-isomer)	108418	Sodium phenate	139026	Trimethylamine	75503
Chlorotoluene (o-isomer)	95498	Stilbene	588590	Trimethylcyclohexanol	933482
Chlorotoluene (p-isomer)	106434	Sulfanilic acid	121573	Trimethylcyclohexanone	2408379
		Tetrabromophthalic anhydride	632791		

Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number
<b>Group V</b>					
Acetal	105577	Dicyanadimide	461585	Methyl tert butyl ether	1634044
Acetone cyanohydrin (CN compound)	75865	Diethylaniline (2,6-isomer)	579668	Methylpentynol	77758
Alkyl naphthalenes		Difluoroethane	75376	n-Dodecylbenzene	121013
(no CAS# assigned) (POM)	—	Diisobutylene	25167708	Neopentanoic acid	75989
Bromoform	75252	Diisooctyl phthalate	27554263	Nonylphenol	25154523
Butyl acrylate (n-isomer)	141322	Diketene	674828	N-vinyl-2-pyrrolidine	88120
Butyl alcohol (s-isomer)	78922	Dodecylaniline	26675174	Polyethylene glycol	25322683
Butyl alcohol (t-isomer)	75650	Ethyl orthoformate	122510	Polypropylene glycol	25322694
Butyl benzoic acid (p-tert-isomer)	96737	Ethyl oxalate	95921	Resorcylic acid	27138674
Butylamine (s-isomer)	13952846	Ethylamine	75047	Sodium carboxymethyl cellulose	9004324
Butylamine (t-isomer)	75649	Ethylcellulose	9004573	Sodium cyanide	143339
Carbaryl	63252	Ethylcyanoacetate	105566	Sodium formate	141537
Cellulose acetate	9004357	Hexachlorocyclopentadiene	77474	tert-Butylbenzene	98066
Chlorodifluoroethane	75456	Hexamethylene glycol	629118	Tetramethyl lead	75741
Chlorophenols	25167800	Hydrogen cyanide (CN compound)	74908	Tetramethylmethylenediamine	110189
Chlorosulfonic acid	7790945	Isobutyl acrylate	106638	Triisobutylene	7756947
Cyanamide	420042	Isobutylene	115117	Trimethylpentane (2,2,4-isomer)	540841
Cyanogen chloride		Ketone	463514	Urea	57136
(CN compound)	506774	Linear alkyl sulfonate		Xylenol	1300716
Cyanuric acid	108805	(no CAS# assigned)	—	Xylenol (2,3-isomer)	526750
Cyanuric chloride	108770	Mesityl oxide	141797	Xylenol (2,4-isomer)	105679
Diacetone alcohol	123422	Methacrylic acid	79414	Xylenol (2,5-isomer)	95874
Diaminophenol hydrochloride	137097	Methallyl chloride	563473	Xylenol (2,6-isomer)	576261
Dibromoethane	74953	Methyl acrylate	96333	Xylenol (3,4-isomer)	95658
Dichlorohydrin	96231	Methyl ethyl ketone (2-Butanone)	78933	Xylenol (3,5-isomer)	108689

For more information on Kalrez®  
or other elastomers:

(800) 853-5515 (U.S. & Canada)  
(302) 792-4000  
www.dupont-dow.com

Global Headquarters  
DuPont Dow Elastomers L.L.C.  
300 Bellevue Parkway, Suite 300  
Wilmington, DE 19809 USA  
Tel. (302) 792-4000  
Fax. (302) 892-7390

European Regional  
Headquarters  
DuPont Dow Elastomers S.A.  
2, chemin du Pavillon  
CH-1218 Le Grand-Saconnex  
Geneva, Switzerland  
Tel. +41-22-717-4000  
Fax. +41-22-717-4001

Asia Pacific Regional  
Headquarters  
DuPont Dow Elastomers Pte Ltd.  
1 Maritime Square #10-54  
World Trade Centre  
Singapore 099253  
Tel. +65-275-9383  
Fax. +65-275-9395

South & Central  
America Regional  
Headquarters  
DuPont Dow Elastomers Ltda.  
Rua Henrique Monteiro, 90  
5: andar – Pinheiros  
05423-912  
São Paulo – SP  
Brazil  
Tel. +55-11-816-0256  
Fax. +55-11-814-6845

Kalrez Parts Marketing  
DuPont Dow Elastomers L.L.C.  
P.O. Box 6098  
Newark, DE 19714  
Tel. (800) 323-9806

Kalrez European Parts  
Marketing  
DuPont Dow Elastomers N.V.  
Battelsesteenweg 455d  
B-2800 Mechelen, Belgium  
Tel. +32 15 28 87 00  
Fax. +32 15 28 87 50

Kalrez Asia Parts  
Marketing  
DuPont Dow Elastomers Limited  
Dempa Bldg., 11-15  
Higashi Gotanda 1-chome  
Shinagawa-ku  
Tokyo, Japan 141-0022  
Tel. +81-3-3444-5166  
Fax. +81-3-3444-6095

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