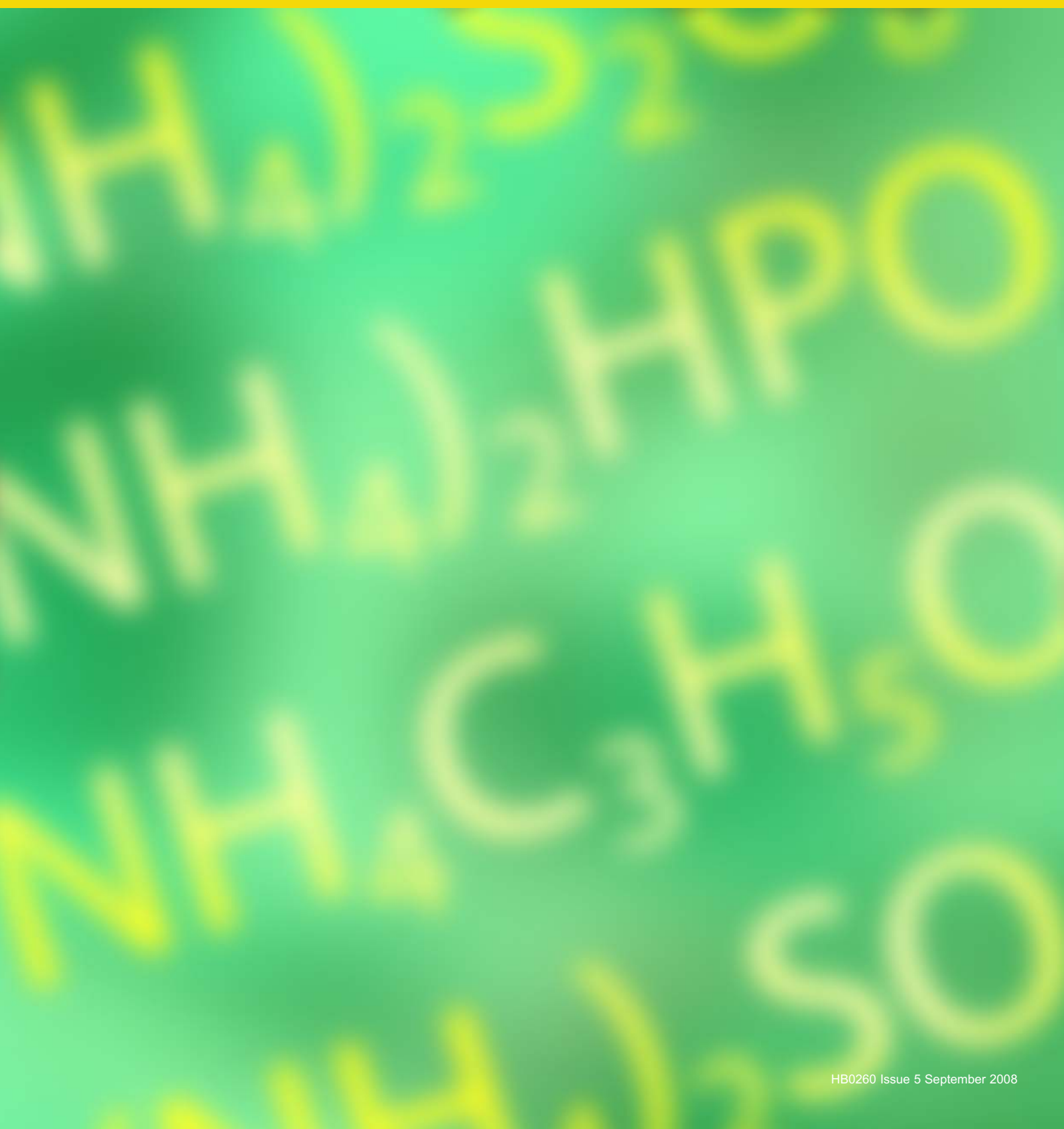


CHART

Chemical compatibility



Choosing the best tubing for *your* application

Selecting the right tubing is as important as the choice of pump. Watson-Marlow Bredel pumps are designed around Watson-Marlow Bredel tubing, and using other tubing could result in reduced performance.

A number of characteristics govern a pump's performance.

Suction lift depends on the tube restituting fully before the advance of the next roller, drawing in the maximum amount of fluid. If it does not, flow rate will be reduced. Maximise suction lift by using the smallest practicable bore size of tubing and run the pump at the slowest speed.

The tube's strength resists pressure, its flex resistance determines pumping life, its bore decides flow rate and its wall thickness controls pumping efficiency and flow stability.

First use this guide

The best way to select a tube is to use this guide to identify chemically suitable materials, and choose the one which best meets the physical demands of an application.

Normally, use the longest-life material, which will usually be Marprene or Bioprene, if they are chemically and physically suitable. For bio-pharmaceutical applications Pumpsil or Pumpsil-D platinum silicone are often the right choice. For industrial applications Neoprene is widely used.

- For maximum tube life use a large-bore tube at low speed.
- For maximum flow use the largest tube at maximum speed.
- For maximum accuracy use a small-bore tube at high speed.

What sizes fit which pump?

The Watson-Marlow pump range uses tubes with bores from 0.13mm to 40mm. When choosing your tube, identify the wall thickness your pumphead requires; then select a bore according to your flow requirements.

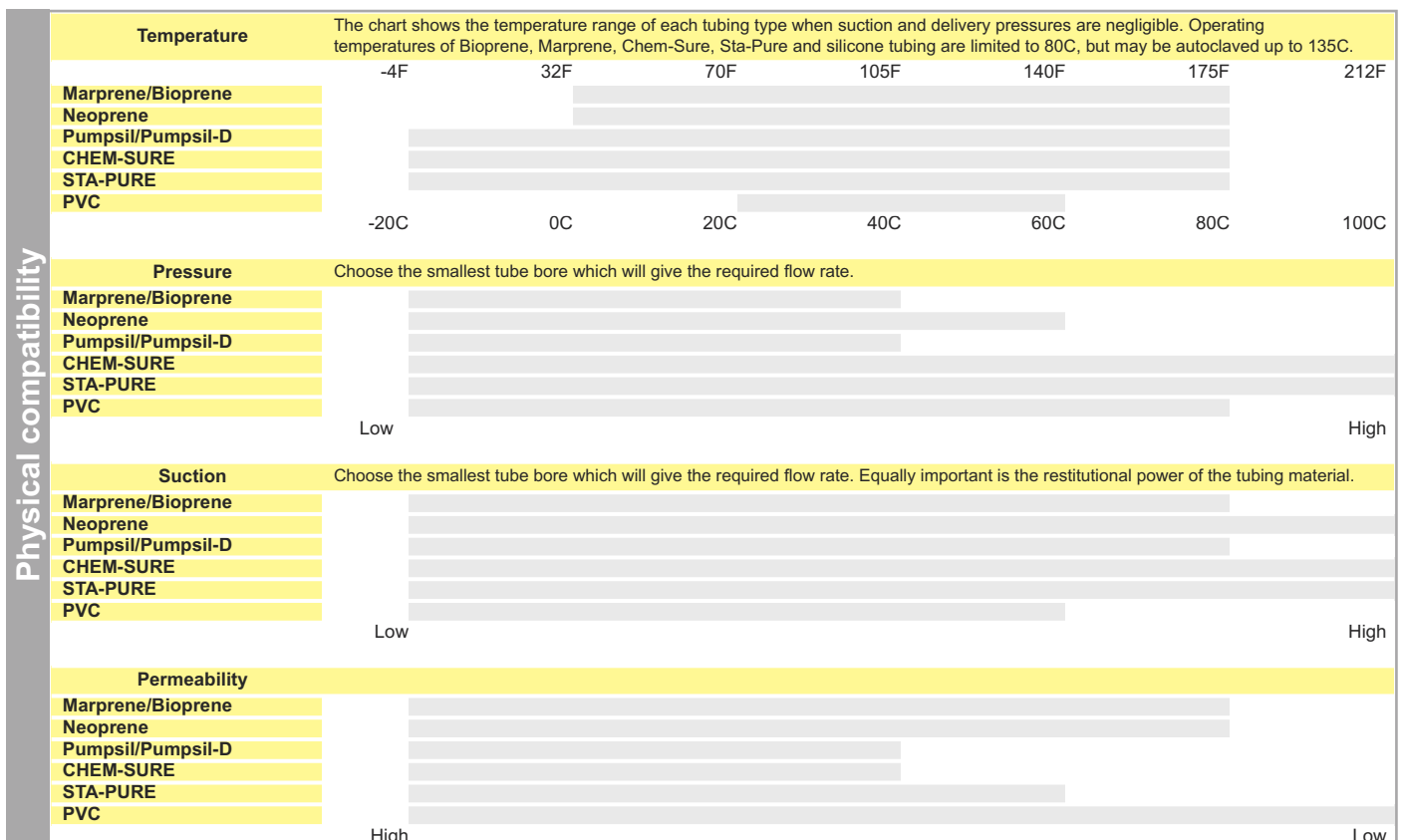
Tube wall and bore sizes, mm, appropriate to pumpheads		
Pumphead	Tube wall thickness	
	0.8 1.6 2.4 3.2 4.0 4.8 9.0 12.8	
102R	0.5-4.8	
205CA	0.13-2.79	
313D/314D	1.6-8.0	
313D2/314D2	4.8-6.4	
314MC/318MC	0.13-2.79	
400 series	D1(B1)/D2/D3	0.5-4.0
	DM2/DM3	0.13-2.79
	R1	0.5-6.4
	L/L2	
	GM/VM2 to 4	0.13-2.79
	M1/N2	0.5-4.0
	A	0.5-2.0
520R	0.5-8.0	
520R2	1.6-9.6	
520RE(L/M/H)	3.2/6.4/9.6	
620R	6.4-15.9	
620RE	12.0/17.0	
720R	9.6-25.4	
720RE	12.7-25.4	
825	25	
840	40	

Unparalleled support

Every Watson-Marlow company and distributor provides qualified technical support. If you have questions about tube performance or selection, they will be pleased to help.

Validation packs

Validation packs are available for Pumpsil, Pumpsil-D, Bioprene and STA-PURE tube. Contact your Watson-Marlow tubing representative for more information, including validation information on LoadSure elements.





Datasheets are available for all our tubing, detailing material characteristics, wall and bore sizes and pack sizes



We also publish a tubing sizing guide, which makes it easy to confirm the bore and wall size of a length of tubing as an aid to accurate ordering.



Immersion test samples allow users to check the chemical suitability of our tube materials for their applications

Watson-Marlow Bredel tubing

Marprene is Watson-Marlow Bredel's most often-recommended tubing material. It is an exclusive thermoplastic elastomer which has proven superior in applications where it is chemically compatible. It has a wide chemical compatibility and is highly resistant to oxidising agents. Marprene is opaque to visible and ultra-violet light, and maintains low permeability to gases.

Bioprene offers the same benefits as Marprene and also complies with USP Class VI, FDA requirements 21 CFR 177.2600, and USDA standards for food handling. Bioprene and Marprene can be repeatedly sterilised by autoclave, with no effect on their life. Bioprene can be sterilised by ethylene oxide or gamma radiation.

Pumpsil is a specially developed platinum cured silicone with a smoother surface to reduce protein binding. It has superior flex resistance and longer life than many platinum silicones. Pumpsil meets USP VI and FDA standards and is ideal for pharmaceutical, biotech, medical device and chemical analysis applications, including single use/disposable devices. Pumpsil can be sterilised by autoclave, gamma or EtO and is available in bore sizes up to 25.4mm. For extra-

long life or dispensing, specify Pumpsil-D.

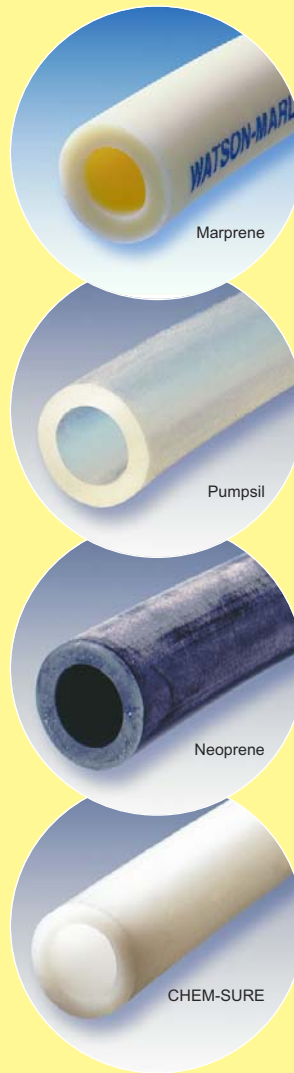
Neoprene offers excellent performance in abrasive slurry and sustained suction pressure applications. This tubing is most often used in bore sizes greater than 12.7mm.

STA-PURE has a unique composite construction of silicone in an ePTFE lattice giving it superior burst resistance up to 7 bar (100psi) and 18 times longer life than silicone tubing. It produces virtually no spalling and is USP Class VI approved. It is autoclavable, and SIP and CIP compatible.

CHEM-SURE is a high-performance composite of ePTFE and a high-grade fluoroelastomer, giving extraordinary chemical resistance and life, and very high burst pressures. It is USP Class VI and food grade approved, and is suitable for foods and pharmaceuticals as well as aggressive chemicals.

PVC (polyvinyl chloride) offers excellent pressure and suction performance and low gas permeability.

Fluorel has been developed for chemical resistance to solvents, oils and strong acids, providing long life and chemical resistance in applications where other tubing materials are unsuitable.



Tube life

102 tube life range (hours)

Zero pressure. Water. 32 rpm. Clockwise rotation. 4.8mm bore tubing.

Pumpsil 900

313 and 314 pumphead tube life range (hours)

Zero pressure. Water. 110 rpm. 6.4mm bore tubing

Marprene/Bioprene 10,000

Pumpsil 230

Pumpsil-D 280

STA-PURE 10,000

520R pumphead tube life range (hours): clockwise rotation

Zero pressure. Water. 220 rpm. Clockwise rotation. 6.4mm bore tubing except Marprene which was 4.8mm bore

Marprene/Bioprene 10,000

Neoprene 40

Pumpsil 200

Pumpsil-D 250

CHEM-SURE 6,000

STA-PURE 10,000

PVC 90

620R tube life range (hours)

Zero pressure. Water. 100 rpm. Clockwise rotation. 12.7mm bore tubing

Marprene/Bioprene 6,000

Neoprene 60

Pumpsil/Pumpsil-D 230

CHEM-SURE 5,000

STA-PURE 6,000

PVC 90

701R tube life range (hours)

Zero pressure. Water. 360 rpm. Clockwise rotation. 25.4mm bore tubing

Marprene/Bioprene 3,000

Neoprene 100

Pumpsil 300

CHEM-SURE 3,000

STA-PURE 5,000

Watson-Marlow Bredel chemical compatibility chart

This table indicates the suitability of tubing and other materials for use with a selection of duty fluids. It is intended as a general guide only. Variations in behaviour can occur due to factors such as temperature and pressure. In all cases, users are advised to carry out an immersion test using the duty fluid and the intended tubing material in the conditions expected. Sample lengths of Watson-Marlow Bredel tubing are available for this purpose: all tubes, part number 999.0001.000; Pumpsil, part number 913.AS80.S16; Bioprene, part number 903.S080.S16.

Materials listed:

Rubber	Natural rubber	STA-PURE®	Hybrid composite
Nitrile	Nitrile rubber	CHEM-SURE®	Hybrid composite
EPDM	Ethylene propylene rubber		Mild steel
Hypalon®	Chlorosulphonated polyethylene	SS316	316 stainless steel
Petroproof®	Thermoplastic elastomer TPE		Aluminium
Bioprene®	Thermoplastic elastomer TPE		Cast iron
Marprene®	Thermoplastic elastomer TPE	PVC	Polyvinyl chloride
Pumpsil®	Platinum-cured silicone	PTFE	Polytetrafluoroethylene (Teflon®)
Neoprene®	Chloroprene CR		Polypropylene
Fluorel®	Fluorocarbon FKM	PVDF	Polyvinylidene fluoride (Kynar®)
Tygon®	Polyvinyl chloride		Epoxy

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
ACETAL	C ₆ H ₁₄ O ₂	105-57-7	C	C	C	C	C	?	?	?	?	?	?	?	?	C	C	C	?	?	A	C	?	?
ACETIC ACID 10%	CH ₃ COOH	64-19-7	A	C	A	A	A	A	A	B	A	A	A	B	?	C	A	?	?	A	A	A	A	?
ACETIC ACID 20%	CH ₃ COOH	64-19-7	B	C	A	A	C	A	A	B	A	A	A	B	?	C	A	A	?	A	A	A	A	A
ACETIC ACID 30%	CH ₃ COOH	64-19-7	B	C	A	A	C	A	A	B	B	B	B	B	?	C	A	A	C	A	A	C	A	?
ACETIC ACID 50%	CH ₃ COOH	64-19-7	B	C	A	A	C	A	A	B	B	B	B	B	?	C	A	A	C	A	A	C	A	?
ACETIC ACID 99%	CH ₃ COOH	64-19-7	C	C	A	B	C	B	B	B	B	C	C	B	?	C	A	A	C	A	A	C	A	?
ACETIC ACID (ICE)	CH ₃ COOH	64-19-7	C	C	B	B	C	B	B	B	B	?	?	B	A	C	A	A	C	?	A	B	A	A
ACETIC ACID ANHYDRIDE	C ₄ H ₆ O ₃	108-24-7	C	C	B	C	C	C	C	B	B	C	?	B	A	C	A	?	?	C	A	C	B	A
ACETONE	C ₃ H ₆ O	67-64-1	A	C	A	C	B	B	C	C	C	C	C	C	A	A	A	A	A	C	A	A	C	C
ACETONITRILE	C ₂ H ₃ N	75-05-8	C	C	C	C	C	?	A	C	C	?	A	C	A	A	A	A	?	A	A	A	A	?
ACETOPHENONE	C ₈ H ₈ O	98-86-2	C	C	C	C	C	C	C	C	C	C	C	C	?	C	C	C	?	?	A	C	?	?
ACETYLENE	C ₂ H ₂	74-86-2	C	B	C	B	A	A	A	B	A	A	C	B	A	A	A	A	A	A	A	A	?	A
ACRYL ARYL SULPHONATE SLURRY			A	C	A	B	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ACRYLATE (POLYMER)			?	?	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ACRYLATE (MONOMER)			C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ACRYLIC ACID (323 K)	C ₃ H ₄ O ₂	79-10-7	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ACRYLIC MONOMER			C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ACRYLONITRILE	C ₃ H ₃ N	107-13-1	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	?	A	A	?	A
AIR	78% N ₂ + 21% O ₂	132259-10-0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
ALCOHOL (ETHYL)	C ₂ H ₅ OH	64-17-5	A	A	A	A	B	A	A	B	A	A	A	B	A	A	A	?	?	?	?	?	B	A
ALKYLARYL BENZENE SULPHONATE			C	A	A	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ALLYL ALCOHOL	C ₃ H ₅ OH	107-18-6	A	B	A	B	A	A	A	?	A	A	B	?	?	?	?	?	?	?	?	A	A	?
ALLYL CHLORIDE	C ₃ H ₅ Cl	107-05-1	C	C	C	C	C	C	C	A	C	B	?	A	?	?	A	C	B	?	A	A	A	?
ALUM	AlK(SO ₄) ₂ ·12H ₂ O	977007-61-6	A	A	A	A	?	A	A	A	A	A	A	A	?	C	C	?	?	?	A	A	A	?
ALUMINIUM CHLORIDE	AlCl ₃	7446-70-0	A	A	A	A	A	A	A	B	A	A	A	B	?	C	C	C	B	A	A	A	A	A
ALUMINIUM FLUORIDE	AlF ₃	7784-18-1	A	A	A	A	A	A	A	B	A	A	B	B	?	C	C	?	B	A	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy	
ALUMINIUM HYDROXIDE	Al(OH) ₃	21645-51-2	A	A	A	A	A	A	A	A	A	A	A	A	?	C	C	?	?	A	A	A	A	A	
ALUMINIUM SILICATE	Al ₂ SiO ₅	1332-58-7	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	
ALUMINIUM SULPHATE	Al ₂ (SO ₄) ₃	10043-01-3	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	C	A	A	A	A	A	
AMMONIA ANHYDRIC	NH ₃ in H ₂ O		A	B	A	A	B	A	A	C	A	C	B	C	?	A	A	A	A	A	A	A	A	A	
AMMONIA (AQUEOUS)			A	A	A	A	A	A	A	B	A	B	B	B	?	?	A	A	A	?	A	?	?	A	
AMMONIA (GAS)	NH ₃ (g)	7664-41-7	A	A	A	A	A	A	A	A	A	C	C	A	A	?	A	?	?	A	A	A	A	?	
AMMONIUM BICARBONATE	NH ₄ HCO ₃	1066-33-7	A	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	A	A	?	?	?	
AMMONIUM BISULPHATE 50%	NH ₄ H ₂ SO ₄	7803-63-6	A	C	A	A	B	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	
AMMONIUM BROMIDE	NH ₄ Br	12124-97-9	B	C	A	A	B	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	
AMMONIUM CARBONATE	(NH ₄) ₂ CO ₃	8000-73-5	A	A	A	A	A	A	A	B	A	A	A	B	A	C	C	A	A	A	A	A	A	A	
AMMONIUM CHLORIDE	NH ₄ Cl	12125-02-9	A	A	A	A	A	A	A	B	A	A	A	B	A	C	C	C	C	A	A	A	A	A	
AMMONIUM FORMATE	NH ₄ CO ₂	540-69-2	A	A	A	A	B	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	
AMMONIUM HYDROXIDE	NH ₄ OH	1336-21-6	A	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	
AMMONIUM METAPHOSPHATE	NH ₄ PO ₃		A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	?	A	?	A	A	A	?	
AMMONIUM NITRATE	NH ₄ NO ₃	6484-52-2	A	A	A	A	A	A	A	B	A	A	A	B	A	A	A	A	A	A	B	A	A	A	
AMMONIUM NITRITE	NH ₄ NO ₂	13446-48-5	A	A	A	A	A	A	A	B	A	A	A	B	?	?	?	?	?	?	?	?	?	?	
AMMONIUM PERSULPHATE	(NH ₄) ₂ S ₂ O ₈	7727-54-0	B	B	A	A	?	A	A	C	A	A	A	C	?	C	C	B	C	A	A	A	?	A	
AMMONIUM PHOSPHATE	(NH ₄) ₂ HPO ₄	7783-28-0	A	A	A	A	A	A	A	A	A	A	A	A	?	C	C	C	C	A	A	A	A	?	A
AMMONIUM PROPIONATE	NH ₄ C ₃ H ₅ O ₂	17496-08-1	A	C	A	B	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	
AMMONIUM SULPHATE	(NH ₄) ₂ SO ₄	7783-20-2	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	C	C	A	A	A	A	A	
AMMONIUM THIOCYANATE	NH ₄ SCN	1762-95-4	A	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	B	?	A	?	?	?	
AMYL ACETATE	C ₇ H ₁₄ O ₂	628-63-7	B	B	B	C	B	C	C	C	C	C	C	C	B	?	A	A	A	C	?	A	A	A	
AMYL ALCOHOL	C ₅ H ₁₁ OH	71-41-0	B	B	B	A	A	A	A	A	C	A	A	A	A	A	A	A	A	?	A	A	A	C	
AMYL AMINE	C ₅ H ₁₁ NH ₂	110-58-7	C	C	C	C	B	C	C	?	C	C	?	?	?	?	?	?	?	?	?	?	?	?	
AMYL BORATE	C ₅ H ₁₁ BO ₃		B	C	B	C	?	C	C	C	A	A	?	C	?	?	?	?	?	?	?	?	?	?	
AMYL BROMIDE	C ₅ H ₁₁ Br	110-53-2	B	C	B	C	C	C	C	?	C	A	?	?	?	?	?	?	?	?	?	?	?	?	

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
AMYL CHLORIDE	C ₅ H ₁₁ Cl	543-59-9	C	C	C	C	C	C	C	C	C	B	C	C	?	?	A	C	A	C	A	C	A	A
AMYL CHLORONAPHTHALENE	C ₁₅ H ₁₇ Cl		C	C	C	C	C	C	C	C	C	A	C	C	?	?	?	?	?	?	A	?	?	?
AMYL ETHER	C ₁₀ H ₂₂ O	693-65-2	C	C	C	C	B	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
AMYL IODIDE	C ₅ H ₁₁ I	628-17-1	C	C	C	C	C	C	C	?	A	?	?	?	?	?	?	?	?	?	A	?	?	?
AMYL NAPHTHALENE	C ₁₅ H ₁₈		C	C	C	C	B	C	C	C	C	A	C	C	?	?	?	?	?	?	A	?	?	?
AMYL PHENOL	C ₁₀ H ₁₇ O	1322-06-1	C	C	C	C	B	C	C	?	?	A	?	?	?	?	A	A	A	?	A	?	?	?
AMYLENE	C ₃ H ₁₀	109-67-1	C	C	C	C	A	C	C	?	A	A	?	?	?	?	?	?	?	C	A	?	?	?
ANILINE	C ₆ H ₅ NH ₂	62-53-3	C	C	C	C	C	B	B	B	C	A	C	B	A	?	A	A	C	C	A	B	A	A
ANILINE PAINT			B	C	C	C	?	?	?	B	C	B	C	B	?	?	A	?	?	C	A	A	?	?
ANIMAL FAT			C	B	C	B	A	?	?	B	A	B	B	B	?	?	A	A	C	?	A	?	A	?
ANIMAL GLUE			A	A	A	A	?	?	?	B	A	A	?	B	?	?	?	?	?	?	A	?	?	?
ANTHRAQUINONE (55 °C)	C ₁₄ H ₈ O ₂	84-65-1	A	B	A	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
ANTI-FREEZE	C ₂ H ₆ O ₂	107-21-1	A	A	A	A	A	A	A	B	A	A	B	B	A	A	A	A	A	A	?	A	?	A
ANTIMONY CHLORIDE 50%	SbCl ₃	10025-91-9	B	C	A	A	C	A	A	?	C	B	A	?	?	C	C	?	?	A	A	A	?	?
AQUA REGIA	conc. HNO ₃ + HCl (1:3)	8007-56-5	C	C	B	C	C	C	C	C	C	A	C	C	?	C	C	C	C	B	A	B	C	C
ARSENIC TRIOXIDE	As ₂ O ₃	1327-53-3	A	A	A	A	A	A	A	?	A	A	B	?	?	?	?	?	?	?	?	?	?	?
ARSENIC ACID	H ₃ AsO ₄	7778-39-4	C	C	B	A	C	?	?	A	A	A	B	A	A	C	C	A	C	A	A	A	?	A
ASCORBIC ACID	C ₆ H ₈ O ₆	50-81-7	A	A	A	A	?	A	A	?	A	A	?	?	?	?	A	A	A	?	A	?	?	?
ASPHALT		8052-42-4	C	B	C	C	?	C	C	C	B	A	B	C	A	A	A	A	A	?	A	?	A	A
ASTOR OIL 1-2-3			C	C	C	C	?	?	?	?	?	?	?	?	?	?	A	A	A	?	A	?	?	?
AVIATION GASOLINE			C	B	C	C	A	C	C	?	?	B	?	?	?	A	A	A	A	?	A	?	?	?
BARIUM CARBONATE	BaCO ₃	513-77-9	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	C	A	A	A	A	A	A
BARIUM CHLORIDE	BaCl ₂	10361-37-2	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	C	B	A	A	A	A	A
BARIUM FERRITE	BaO.6Fe ₂ O ₃	11138-11-7	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
BARIUM HYDROXIDE	Ba(OH) ₂ .8H ₂ O	12230-71-6	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	?	C	A	A	A	A	A
BARIUM SULPHATE	BaSO ₄	7727-43-7	A	A	A	A	A	A	A	A	A	A	A	A	?	C	C	A	A	A	A	A	A	B

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
BARIUM SULPHIDE	BaS	21109-95-5	A	A	A	A	A	A	A	A	A	A	A	A	?	C	C	C	?	A	A	A	A	A
BEER			A	A	A	A	A	A	A	A	B	A	A	A	A	?	A	A	C	A	A	A	A	A
BEET ROOT SYRUP			A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	?	A	A	A	?
BENZALDEHYDE	C ₇ H ₆ O	100-52-7	C	C	B	C	C	C	A	B	C	C	C	B	A	C	C	A	A	C	?	A	B	A
BENZENE (BENZOL)	C ₆ H ₆	71-43-2	C	C	C	C	C	C	C	C	C	C	C	C	A	C	C	A	A	C	A	B	B	B
BENZENESULPHONIC ACID	C ₆ H ₆ SO ₃ H	98-11-3	C	C	C	C	C	?	?	C	B	A	C	C	A	?	A	B	A	?	A	C	A	?
BENZOYL CHLORIDE	C ₇ H ₅ OCI	98-88-4	C	C	C	C	C	C	C	C	C	B	?	C	A	C	C	C	A	?	A	B	A	?
BENZYL ALCOHOL	C ₇ H ₈ O	100-51-6	C	C	C	C	B	C	C	?	B	A	B	?	A	A	A	A	A	?	A	A	A	?
BENZYL BENZOATE	C ₁₄ H ₁₂ O ₂	120-51-4	C	C	C	C	C	C	C	C	C	A	?	C	?	A	A	A	A	?	A	A	A	?
BIRD LIME (GLUE)			A	A	A	A	?	?	?	?	?	?	?	?	?	A	A	A	?	?	A	?	?	?
BICALCIUM PHOSPHATE	CaHPO ₄		A	?	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
BISMUTH CARBONATE	(BiO) ₂ CO ₃	5892-10-4	A	A	A	A	A	A	A	?	A	A	?	?	?	A	A	?	?	A	A	A	A	?
BLACK SULPHATE LIQUOR			A	A	A	A	?	C	C	B	B	A	?	B	?	?	A	B	A	?	A	?	?	?
BLAST FURNACE GAS			C	A	C	C	?	?	?	A	C	A	?	A	?	?	?	?	?	?	?	?	?	?
BOR(AC)IC ACID	H ₃ BO ₃	10043-35-3	A	A	A	A	?	A	A	A	A	A	A	A	A	?	?	A	C	?	A	A	A	A
BORAX	Na ₂ B ₄ O ₇ ·10H ₂ O	1303-96-4	A	A	A	A	?	A	A	B	A	A	A	B	?	A	A	A	A	A	A	A	A	?
BROMINE	Br ₂	7726-95-6	C	C	C	B	?	C	C	C	C	A	B	C	?	C	C	A	B	C	?	C	?	C
BUTADIENE	C ₄ H ₆	106-99-0	C	B	C	C	A	C	C	C	C	A	C	C	B	A	A	A	A	?	A	C	A	A
BUTANE	C ₄ H ₁₀	106-97-8	C	C	C	C	A	C	C	C	B	A	C	C	B	A	A	A	A	?	A	C	A	A
BUTANE FLUID	C ₄ H ₁₀	106-97-8	C	B	C	C	A	C	C	C	B	A	C	C	?	?	?	?	?	?	?	?	?	?
BUTTER			C	A	C	C	A	?	?	B	B	A	B	A	?	A	A	A	C	?	A	?	?	A
BUTTER ACID	C ₄ H ₈ O ₂	107-92-6	B	B	C	C	C	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
BUTYL ACETATE	C ₆ H ₁₂ O ₂	123-86-4	C	C	B	C	B	C	C	C	C	C	C	C	B	A	A	A	A	C	A	B	A	B
BUTYL ALCOHOL	C ₄ H ₉ OH	71-36-3	B	B	A	C	A	A	A	B	A	A	B	A	A	A	A	A	A	A	A	A	A	A
BUTYL ALDEHYDE	C ₄ H ₈ O	123-72-8	C	C	C	C	B	A	A	C	C	C	?	C	?	?	?	?	?	?	?	?	?	?
BUTYL CELLOSOLVE (=2-butoxyethanol)	C ₆ H ₁₃ O ₂	111-76-2	C	C	C	A	B	?	?	C	C	B	C	C	?	A	A	?	?	?	?	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
BUTYL CELLOSOLVE ADIPATE	C ₆ H ₁₄ O ₂		C	C	C	C	C	?	?	B	C	B	?	B	?	?	?	?	?	?	A	?	?	?
BUTYL ETHER	C ₈ H ₁₈ O	142-96-1	C	C	C	C	A	C	C	C	B	C	?	C	B	A	A	A	A	?	A	C	A	?
BUTYL GLYCOL	C ₆ H ₁₄ O ₂	107-88-0	A	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	A	A	?	?	?
BUTYL IODIDE	C ₄ H ₉ I	542-69-8	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	A	?	?	?
BUTYL STEARATE	C ₂₂ H ₄₄ O ₂	123-95-5	C	B	C	C	A	C	C	?	C	A	?	?	?	?	A	A	A	?	A	?	A	?
BUTYRONITRILE	C ₄ H ₇ N	109-74-0	C	C	C	C	C	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
CALCIUM ACETATE	Ca(C ₂ H ₃ O ₂) ₂	62-54-4	A	A	A	A	B	A	A	C	B	C	?	C	A	?	A	?	?	?	A	A	?	?
CALCIUM BISULPHATE	Ca(HSO ₄) ₂	10034-88-5	A	A	A	A	B	A	A	B	B	A	C	B	?	?	A	?	C	?	?	A	?	A
CALCIUM BISULPHITE	Ca(HSO ₃) ₂	13780-03-5	A	A	A	A	B	A	A	C	A	A	B	C	?	?	?	C	C	?	A	A	A	A
CALCIUM BROMIDE	CaBr ₂	7789-41-5	?	?	A	?	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
CALCIUM CARBONATE	CaCO ₃	471-34-1	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	B	A	A	A	A	A	A
CALCIUM CHLORATE	Ca(ClO ₃) ₂ ·H ₂ O	10137-74-3	A	B	A	A	B	A	A	A	A	A	A	A	A	C	C	?	A	A	A	A	?	?
CALCIUM CHLORIDE	CaCl ₂	10035-04-8	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	A	A	A	A	A	?	A
CALCIUM FLUORIDE	CaF ₂	7789-75-5	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
CALCIUM HYDROXIDE	Ca(OH) ₂	1305-62-0	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	?	?	A	A	A	?	?
CALCIUM HYPOCHLORITE	Ca(ClO) ₂	7778-54-3	C	C	A	A	B	A	A	B	B	A	B	B	A	?	?	?	?	?	?	?	?	?
CALCIUM HYPOCHLORITE 30%	Ca(ClO) ₂	7778-54-3	B	B	A	A	B	A	A	B	B	A	B	B	A	?	?	C	C	?	A	A	A	?
CALCIUM NITRATE	Ca(NO ₃) ₂	13477-34-4	A	A	A	A	A	A	A	B	A	A	?	B	A	C	C	?	?	A	A	A	?	?
CALCIUM STEARATE	Ca(C ₁₈ H ₃₅ O ₂) ₂	1592-23-0	B	B	C	C	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
CALCIUM SULPHATE	CaSO ₄	7778-18-9	A	A	A	A	A	A	A	?	A	A	A	?	A	C	C	B	?	A	A	A	A	A
CALCIUM SULPHIDE	CaS	20548-54-3	A	A	A	A	A	A	A	B	A	A	?	B	?	A	A	?	A	?	A	A	A	?
CALCIUM TETRAFLUORIDE	Ca ₂ F ₄		C	C	B	A	?	?	?	?	?	?	?	?	?	?	A	?	?	A	A	A	?	?
CALIC LIQUOR			A	A	A	A	?	?	?	A	A	A	?	A	?	?	?	?	?	?	A	?	?	?
CANE SUGAR LIQUOR			A	A	A	A	?	A	A	A	A	A	A	A	?	A	A	A	A	?	A	A	A	?
CARBIDE LIME / CARBIDE SLUDGE			A	A	A	A	?	?	?	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?
CARBITOL	C ₆ H ₁₄ O ₃	111-90-0	C	C	C	C	?	C	C	B	C	B	?	B	?	?	A	A	A	?	A	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
CARBOLIC ACID (= phenol)	C ₆ H ₅ OH	108-95-2	C	C	C	B	C	C	C	C	A	C	C	?	?	A	A	A	?	A	B	A	B
CARBON DIOXIDE (DRY)	CO ₂	124-38-9	A	A	A	A	A	A	B	A	A	A	B	A	A	A	A	C	A	A	A	A	A
CARBON DIOXIDE (MOIST)	CO ₂	124-38-9	A	A	A	A	A	A	B	B	B	C	B	A	A	A	A	C	A	A	A	A	A
CARBON DISULPHIDE	CS ₂	75-15-0	C	A	C	?	?	?	C	C	A	?	C	?	A	A	A	A	C	A	C	A	C
CARBON MONOXIDE (338 K)	CO	630-08-0	A	B	A	?	A	A	A	A	A	B	A	A	A	A	A	A	?	A	A	A	A
CARBON TETRACHLORIDE	CCl ₄	56-23-5	C	C	C	C	C	C	C	C	A	C	C	B	?	?	?	?	C	A	?	?	?
CARBONIC ACID	H ₂ CO ₃ (CO ₂ in H ₂ O)	463-79-6	A	A	A	A	A	A	A	B	A	A	A	A	?	C	A	C	C	A	A	A	A
CARBOXYMETHYL CELLULOSE 12%		9000-11-7	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
CASTOR OIL		8001-79-4	C	B	C	A	C	C	A	A	A	A	A	A	?	A	A	A	A	A	A	A	?
CAUSTIC SODA (max. 50%)	NaOH	1310-73-2	B	B	A	?	A	A	A	A	A	B	A	?	?	B	?	?	A	?	A	A	?
CELLOSOLVE	C ₄ H ₁₀ O ₂		C	C	C	?	A	A	C	C	C	C	C	?	?	A	A	?	?	A	A	A	?
CELLOSOLVE ACETATE	C ₆ H ₁₂ O ₃		C	C	C	?	A	A	C	C	C	C	C	?	?	A	A	?	?	A	A	A	?
CELLULOSE ACETATE		9004-35-7	?	B	C	?	?	?	?	B	C	?	?	?	?	A	A	A	?	A	?	?	?
CHINA WOOD OIL (TUNG OIL)		8001-20-5	C	C	C	?	?	?	C	A	A	?	C	?	A	A	A	?	?	A	?	?	?
CHLORIC ACID	HClO ₃	7601-90-3	C	C	A	A	C	?	?	?	?	A	?	A	C	C	C	?	A	?	?	?	?
CHLORIC ACID SULPHUROUS			C	C	B	A	C	?	?	?	?	?	?	?	?	?	?	?	C	A	?	?	?
CHLORINATED SOLVENTS			C	C	C	C	C	C	C	C	A	C	C	B	?	?	?	?	?	?	?	?	?
CHLORINE AQUEOUS SOLUTION 3%	Cl ₂ in H ₂ O	977091-22-7	C	C	A	?	?	?	?	C	A	C	?	?	?	A	B	?	?	A	A	A	A
CHLORINE (DRY)	Cl ₂	7782-50-5	C	C	B	C	?	C	C	C	A	C	C	?	C	C	C	C	A	A	C	A	?
CHLORINE (MOIST)	Cl ₂	7782-50-5	C	C	A	?	C	C	C	C	A	B	C	?	?	A	A	B	?	A	C	A	?
CHLORINE LYE			C	C	A	?	?	?	A	A	B	B	A	?	?	?	?	?	?	A	?	?	?
CHLOROACETONE	C ₃ H ₅ OCl	78-95-5	C	B	B	C	C	C	C	C	B	C	C	B	?	?	?	?	?	A	?	?	?
CHLOROACETONITRILE	C ₂ H ₂ NCI	107-14-2	C	C	C	C	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
CHLOROBENZENE	C ₆ H ₅ Cl	108-90-7	C	C	C	C	C	C	C	C	B	C	C	A	A	A	A	?	C	A	?	?	?
CHLOROBROMOMETHANE	CH ₂ ClBr	74-97-5	C	C	C	C	C	C	C	C	B	C	C	?	?	A	?	?	C	A	?	?	?
CHLOROETHYL ACETATE	C ₄ H ₇ O ₂ Cl	542-58-5	C	C	C	C	C	C	C	C	B	C	C	?	?	?	?	?	?	A	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
CHLOROMETHYL	CH ₃ Cl	74-87-3	C	C	C	C	C	C	C	C	C	B	C	C	C	?	?	?	?	?	A	?	?	?
CHLORONAPHTHALENE	C ₁₀ H ₇ Cl	90-13-1	C	C	C	C	C	C	C	C	C	A	C	C	?	A	A	?	?	C	A	?	?	?
CHLORO NITROETHANE	C ₂ H ₄ NO ₂ Cl	598-92-5	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	A	?	?	?
CHLOROSULPHONIC ACID	H ₂ SO ₃ Cl	7790-94-5	C	C	?	C	C	C	C	C	C	C	C	C	A	?	?	?	?	?	A	?	?	?
CHLOROTOLUENE	C ₇ H ₇ Cl	100-44-7	C	C	C	C	C	C	C	?	C	A	?	?	?	A	A	A	?	?	A	?	?	?
CHLOROFORM	CHCl ₃	67-66-3	C	C	C	C	C	C	C	C	C	A	C	C	B	A	A	C	A	C	A	B	A	B
CHROMIC ACID 10%	CrO ₃ ·H ₂ O	1333-82-0	C	C	?	A	C	A	A	C	C	A	C	C	?	C	C	A	C	A	A	C	A	B
CHROMIC ACID 25%	CrO ₃ ·H ₂ O	1333-82-0	C	C	?	A	C	A	A	C	C	A	C	C	?	C	C	C	C	A	A	C	A	B
CHROMIC ACID 50%	CrO ₃ ·H ₂ O	1333-82-0	C	C	?	A	C	A	A	C	C	A	C	C	?	C	C	C	C	A	A	C	A	B
CHROMIUM HYDROXIDE	Cr(OH) ₃	1308-14-1	C	C	A	A	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
CHROMIUM SULPHATE	Cr ₂ (SO ₄) ₃	10101-53-8	C	C	A	?	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
CITRIC ACID	C ₆ H ₈ O ₇	77-92-9	A	B	A	A	B	A	A	A	A	A	B	A	A	?	?	A	C	A	A	A	?	A
CITRUS PULP			A	B	A	A	B	A	A	A	A	A	B	A	A	?	?	?	?	?	?	?	?	?
COCONUT OIL		8001-31-8	C	B	C	C	A	C	C	A	B	A	C	A	A	A	A	A	A	A	A	A	A	?
COD LIVER OIL		8001-69-2	C	B	C	C	A	C	C	B	B	A	?	B	A	?	A	A	C	?	A	?	?	?
COKES OVEN GAS			C	B	C	C	?	?	?	B	C	A	B	B	?	A	?	?	?	?	A	?	A	?
COMPRESSOR OIL			C	A	C	B	A	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
COPPER ARSENATE	Cu ₃ (AsO ₄) ₂	7778-41-8	B	B	A	A	?	A	A	?	A	A	A	?	?	A	A	?	?	?	A	?	?	?
COPPER(I) CHLORIDE	CuCl	7758-99-6	A	A	A	A	?	A	A	A	B	A	B	A	?	C	C	C	C	A	A	A	A	A
COPPER(II) CHLORIDE	CuCl ₂	7447-39-4	A	A	A	A	?	A	A	A	B	A	B	A	?	C	C	C	C	A	A	A	A	A
COPPER CYANIDE	Cu(CN) ₂	544-92-3	B	A	A	A	?	A	A	A	A	B	A	A	?	?	?	C	A	A	?	A	A	A
COPPER NITRATE	Cu(NO ₃) ₂ ·3H ₂ O	10031-43-3	A	B	A	A	?	A	A	?	A	B	?	?	?	?	?	C	?	A	A	A	?	A
COPPER OXYCHLORIDE	CuCl ₂ ·Cu(OH) ₂	1332-65-6	B	B	A	A	?	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
COPPER SULPHATE	CuSO ₄ ·5H ₂ O	7758-98-7	A	B	A	A	?	A	A	A	A	B	A	A	?	?	?	C	C	A	A	A	?	A
COTTONSEED OIL		8001-29-4	C	B	C	C	A	?	A	B	A	B	A	A	A	?	A	A	B	A	A	A	A	?
CREOSOTE OIL			C	C	C	C	?	C	C	C	C	A	C	C	?	C	C	?	?	C	A	B	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
CREOSOTE WOOD			C	C	C	C	?	C	C	C	C	A	C	C	?	A	A	?	?	?	A	C	?	?
CREOSOTE COAL TAR			C	C	C	C	?	C	C	C	C	A	C	C	A	?	A	A	A	?	A	C	?	?
CRESOL 90%, XYLOL 5%, DDT 5%			C	C	C	C	C	C	C	C	C	B	C	C	A	A	A	A	B	C	?	C	A	A
CRESOL 95%, XYLOL 5%			C	C	C	C	C	C	C	C	C	B	C	C	A	A	A	A	B	C	?	C	A	A
CRESYLIC ACID (= cresol)	CH ₃ C ₆ H ₄ OH	1319-77-3	C	C	C	C	C	C	C	C	C	C	C	C	?	?	A	A	B	?	A	C	A	?
CRUDE OIL			C	B	C	B	A	C	C	C	C	A	C	C	A	A	A	A	?	A	A	A	A	?
CRYOLITE 10%	Na ₃ AlF ₆		B	B	B	A	?	?	?	?	B	A	?	?	?	?	A	?	?	?	A	?	?	?
CYANIDE	..CN	57-12-5	A	A	A	A	?	?	?	?	?	?	B	?	?	?	?	?	?	?	?	A	?	?
CYCLOHEXANE	C ₆ H ₁₂	110-82-7	C	B	C	C	B	C	C	C	C	A	C	C	B	A	A	A	A	?	A	C	A	A
CYCLOHEXANOL	C ₆ H ₁₂ O	108-93-0	C	C	C	C	B	C	C	C	C	A	C	C	?	C	C	B	A	C	A	A	A	?
CYCLOHEXANONE	C ₆ H ₁₀ O	108-94-1	C	C	C	C	C	C	C	C	C	C	C	C	?	?	A	A	A	C	A	B	?	?
CYCLOPENTANE	C ₅ H ₁₀	287-92-3	C	C	C	C	B	C	C	?	A	A	?	?	?	?	A	A	A	?	A	?	?	?
p-CYMELE	C ₁₀ H ₁₄	99-87-6	C	C	C	C	?	C	C	C	C	A	?	C	?	?	?	?	?	?	A	?	?	?
DDT2 KEROSEN			C	B	C	C	A	C	C	C	B	A	C	C	?	?	A	A	?	A	A	?	?	?
DECAHYDRONAPHTENE (= decaline)	C ₁₀ H ₁₈	493-01-6 (cis-)	C	C	C	C	?	C	C	C	C	A	B	C	A	?	?	?	?	?	A	?	?	?
DECALIN	C ₁₀ H ₁₈	493-01-6 (cis-)	C	C	C	C	?	C	C	?	?	?	?	?	?	?	?	?	?	?	A	C	?	?
DECANE	C ₁₀ H ₁₈	124-18-5	C	C	C	C	A	C	C	B	C	A	?	B	?	?	?	?	?	?	A	A	A	?
DIESEL OIL		8006-61-9	C	C	C	C	A	C	C	C	B	A	C	C	A	A	A	A	A	?	A	B	A	A
DIACETONE ALCOHOL	C ₆ H ₁₂ O ₂	123-42-2	C	C	C	C	C	?	?	B	B	C	C	B	A	A	A	A	?	?	A	?	?	?
DIAMYL PHTHALATE	C ₁₈ H ₂₆ O ₄	131-18-0	C	C	C	C	B	C	C	?	?	A	?	?	?	?	?	?	?	?	A	?	?	?
DIAMYL NAPHTENE	C ₂₀ H ₂₉		C	C	C	C	?	C	C	?	?	A	?	?	?	?	?	?	?	?	A	?	?	?
DIBENZYL ETHER	C ₁₄ H ₁₄ O	103-50-4	C	C	C	C	?	?	?	?	C	C	C	?	?	A	A	A	?	?	A	?	?	?
DIBUTYL AMINE	C ₈ H ₁₉ N	111-92-2	C	C	C	C	B	C	C	C	C	C	C	C	B	?	?	?	?	?	A	?	?	?
DIBUTYL ETHER	C ₈ H ₁₈ O	142-96-1	C	C	C	C	B	C	C	C	B	C	?	C	?	A	A	A	?	?	A	?	?	?
DIBUTYL PHTHALATE	C ₁₆ H ₂₂ O ₄	84-74-2	C	C	C	C	B	C	C	B	C	B	C	B	A	A	A	A	?	?	A	?	?	?
DIBUTYL SEBACATE	C ₁₈ H ₃₄ O ₄	109-43-3	C	C	C	C	B	C	C	B	C	A	?	B	?	?	?	?	?	?	A	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
DICHLORINE ACID			C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
DICHLOROBENZENE	C ₆ H ₄ Cl ₂	106-46-7 (para-)	C	C	C	C	C	C	C	C	C	C	C	C	B	?	A	?	?	?	A	?	?	?
DICHLOROBUTENE	C ₄ H ₆ Cl ₂	110-57-6 (trans-)	C	C	C	C	C	C	C	C	C	A	C	C	?	?	?	?	?	?	A	?	?	?
DICHLORODIFLUOROMETHANE	CCl ₂ F ₂	75-71-8	C	C	C	C	C	C	C	C	B	C	C	C	?	?	A	?	?	?	A	A	?	?
DICHLOROMETHANE	CH ₂ Cl ₂	75-09-2	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?
DICHLOROPROPENE	C ₃ H ₅ Cl ₂	26952-23-8	C	C	C	C	C	C	C	C	C	A	C	C	?	?	?	?	?	C	A	?	?	?
DICHLOROTETRAFLUOROETHANE	C ₂ Cl ₂ F ₄	76-14-2	C	C	C	C	C	C	C	C	A	A	C	C	?	?	A	A	?	?	A	A	?	?
DICHLOROPHENOXY ACETIC ACID	C ₈ H ₆ Cl ₂ O ₃	94-75-7	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
DICYCLOHEXYLAMINE	(C ₆ H ₁₁) ₂ NH	101-83-7	C	C	C	C	?	C	C	C	C	C	?	C	?	?	?	?	?	?	A	?	?	?
DI-DOWTHERM (A+E)			C	C	C	C	?	?	?	B	C	A	C	B	A	A	A	A	?	?	A	?	?	?
DIETHYL AMINE	(C ₂ H ₅) ₂ NH	109-89-7	C	C	C	C	B	C	C	B	B	C	B	B	B	?	A	?	?	?	A	?	?	?
DIETHYL CARBONATE	(C ₂ H ₅) ₂ CO ₃	105-58-8	C	C	C	C	C	?	?	C	C	A	?	C	A	?	?	?	?	?	A	?	?	?
DIETHYL ETHER	C ₄ H ₁₀ O	60-29-7	C	C	C	C	B	C	C	C	C	C	C	C	?	A	A	A	?	?	A	?	?	?
DIETHYL FATTY ACID			?	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
DIETHYL PHTHALATE	C ₁₂ H ₁₄ O ₄	84-66-2	C	C	C	C	C	C	C	?	?	C	C	?	A	?	A	?	?	?	A	?	?	?
DIETHYL GLYCOL	C ₆ H ₁₄ O ₂		A	A	A	A	A	A	A	B	A	A	B	A	A	A	A	A	?	?	A	A	?	?
DIETHYL KETONE	C ₅ H ₁₀ O ₃	96-22-0	B	C	B	C	B	B	B	?	C	C	C	?	?	?	?	?	?	?	A	?	?	?
DIETHYL OXALATE	C ₆ H ₁₀ O ₄	95-92-1	C	C	C	C	C	C	C	?	C	?	C	?	?	?	?	?	?	?	A	?	?	?
DIETHYL SEBACATE	C ₁₄ H ₂₆ O ₄	110-40-7	C	C	C	C	C	C	C	B	C	B	?	B	?	?	A	?	?	?	A	?	?	?
DIISOBUTENE			C	?	C	C	A	C	C	C	B	A	?	C	?	?	A	?	?	?	A	?	?	?
DIISOBUTYL KETONE	C ₉ H ₁₈ O	108-83-8	C	C	C	C	C	C	C	?	C	C	?	?	A	?	A	?	?	?	A	?	?	?
DIISOPROPYL ETHER	C ₆ H ₁₄ O ₂	108-20-3	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	A	?	?	?
DIISOPROPYL KETONE	C ₇ H ₁₄ O	565-80-0	C	C	C	C	C	C	C	C	C	C	C	C	?	?	A	?	?	?	A	?	?	?
DIMETHYL AMINE	(CH ₃) ₂ NH	124-40-3	C	C	C	C	C	C	C	?	C	C	?	?	A	?	?	?	?	?	?	?	?	?
DIMETHYL ANILINE	C ₈ H ₁₁ N	121-69-7	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	A	?	?	?
DIMETHYL ETHER	C ₂ H ₆ O	115-10-6	C	C	C	C	C	C	C	A	C	A	?	A	?	A	A	A	?	?	A	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy	
DIMETHYL FORMAMIDE	C ₃ H ₇ NO	68-12-2	A	B	A	C	?	C	C	C	C	C	C	C	A	A	A	?	?	?	A	?	?	?	
DIMETHYL PHOSPHITE	C ₂ H ₇ PO ₃	868-85-9	B	C	B	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?	
DIMETHYL PHTHALATE	C ₁₀ H ₁₀ O ₄	131-11-3	C	C	C	C	C	C	C	?	C	A	?	?	A	?	?	?	?	?	A	?	?	?	
DIMETHYL SULPHIDE	(CH ₃) ₂ S	75-18-3	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?	
DIETHYL ADIPATE	C ₂₀ H ₃₈ O ₄	103-23-1	C	C	C	C	A	C	C	?	C	C	?	?	?	?	?	?	?	?	A	?	?	?	
DIETHYL PHTHALATE (DOP)	C ₂₄ H ₃₈ O ₄	117-84-0	C	C	C	C	A	C	C	C	C	B	C	C	A	?	?	?	?	C	A	?	?	?	
DIETHYL SEBACATE	C ₂₆ H ₄₀ O ₄	122-62-3	C	C	C	C	A	C	C	C	C	B	C	C	?	?	?	?	?	?	A	?	?	?	
DIOXANE	C ₄ H ₈ O ₂	123-91-1	C	C	C	C	C	C	C	C	C	C	C	C	?	A	A	A	?	?	A	?	?	?	
DIVINYLBENZENE	C ₁₀ H ₁₀	1321-74-0	C	C	C	C	C	C	C	C	C	A	?	C	?	?	?	?	?	?	A	?	?	?	
DODECYLBENZENE	C ₁₈ H ₃₀	123-01-3	C	C	C	C	?	C	C	?	?	A	?	?	?	?	A	A	A	?	A	C	C	?	
DODECYL TOLUENE SULFONATE	C ₁₉ H ₃₂ O ₃ S	104-41-6	C	C	C	C	?	C	C	?	?	A	?	?	?	?	?	?	?	?	A	?	?	?	
EPICHLOROHYDRINE	C ₃ H ₅ ClO	106-89-8	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	C	A	?	A	A	C	?	
ETHANOLAMINE	C ₂ H ₇ NO	141-43-5	C	C	C	C	?	?	B	B	C	C	C	B	A	A	A	A	A	?	A	C	B	A	
ETHER	C ₄ H ₁₀ O	60-29-7	C	C	C	C	B	C	C	C	C	C	C	C	?	C	C	A	B	A	A	?	?	A	
ETHYLACETATE	C ₄ H ₈ O ₂	141-78-6	B	C	B	C	C	B	B	C	C	C	C	B	A	C	C	A	A	C	A	A	A	B	
ETHYLALCOHOL	C ₂ H ₅ OH	64-17-5	A	A	A	B	A	A	A	B	A	A	C	B	A	A	A	A	A	?	A	A	B	A	?
ETHYLAMINE	C ₂ H ₇ N	75-04-7	?	C	C	C	B	C	C	C	C	C	C	C	B	?	A	A	A	?	A	C	C	?	
ETHYLBENZENE	C ₈ H ₁₀	100-41-4	C	C	C	C	B	C	C	C	C	A	C	C	A	A	A	A	A	?	A	C	A	?	
ETHYLBENZOATE	C ₉ H ₁₀ O ₂	93-89-0	C	C	C	C	B	C	C	C	C	A	C	C	?	?	A	A	A	?	A	A	?	?	
ETHYLBROMIDE	C ₂ H ₅ Br	74-96-4	C	C	C	C	B	C	C	C	C	A	C	C	?	?	A	C	A	?	A	A	?	?	
ETHYLBUTYRATE	C ₆ H ₁₂ O ₂	105-54-4	C	C	C	C	C	C	C	?	C	C	C	?	?	?	A	A	A	?	A	A	?	?	
ETHYLCELULOSE		9004-57-3	A	B	A	B	?	?	?	C	C	B	C	C	?	A	A	A	A	?	A	B	?	?	
ETHYLCHLORIDE	C ₂ H ₅ Cl	75-00-3	C	C	C	C	C	C	C	C	C	A	C	C	?	A	A	C	A	C	A	A	A	A	
ETHYLCHLOROFORMATE	C ₃ H ₅ ClO ₂		C	C	C	C	C	C	C	C	C	A	?	C	?	?	?	?	?	?	?	?	?	?	
ETHYLCYANOACETATE	C ₅ H ₇ NO ₂	105-56-6	?	C	?	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	
ETHYLDICHLORIDE	C ₂ H ₄ Cl ₂	75-34-3	C	C	C	C	C	C	C	C	C	B	?	C	B	?	?	?	?	?	A	?	?	?	

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
ETHYL ETHER	C ₄ H ₁₀ O	60-29-7	C	C	C	C	B	C	C	C	C	C	C	C	B	?	A	?	?	C	A	B	A	?
ETHYL FORMATE	C ₃ H ₆ O ₂	109-94-4	C	C	B	C	C	B	B	C	B	A	C	C	A	?	A	A	A	?	A	?	?	?
ETHYL HEXANOL	C ₈ H ₁₇ OH	104-76-7	C	C	C	C	?	?	?	B	A	A	?	B	?	?	?	?	?	?	A	?	?	?
ETHYL IODIDE	C ₂ H ₅ I	75-03-6	C	C	C	C	C	C	C	?	C	B	?	?	?	?	?	?	?	?	A	?	?	?
ETHYL ISOBUTYLETHER	C ₆ H ₁₄ O	627-02-1	C	C	C	C	B	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
ETHYL ISOBUTYRATE	C ₆ H ₁₂ O ₂	97-62-1	C	C	C	C	C	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
ETHYL MERCAPTAN	C ₂ H ₅ SH	75-08-1	C	C	C	C	?	C	C	C	C	B	?	C	?	?	?	?	?	?	A	?	?	?
ETHYL OXALATE	C ₄ H ₆ O ₄	95-92-1	?	C	C	C	C	C	C	C	C	A	?	C	?	?	?	?	?	?	A	?	?	?
ETHYL PENTACHLOROBENZENE	C ₆ H ₅ Cl ₅		C	C	C	C	C	C	C	C	C	A	?	C	?	?	?	?	?	?	A	?	?	?
ETHYL PROPIONATE	C ₅ H ₁₀ O ₂	105-37-3	C	C	C	C	C	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
ETHYL PROPYLETHER	C ₅ H ₁₂ O	628-32-0	C	C	C	C	B	C	C	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
ETHYL SILICATE	(C ₂ H ₅) ₂ SiO ₄		A	A	A	?	?	?	?	?	A	A	C	?	?	?	?	?	?	?	A	?	?	?
ETHYLAMYL KETONE	C ₈ H ₁₆ O	541-85-5	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
ETHYLENE DIAMINE	C ₂ H ₄ (NH ₂) ₂	107-15-3	C	C	C	C	C	C	C	A	A	C	C	A	?	?	?	?	?	?	A	?	?	?
ETHYLENE GLYCOL	C ₂ H ₆ O ₂	107-21-1	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	?	A	A	A	?	?
ETHYLENE OXYDE	C ₂ H ₄ O	75-21-8	C	C	C	C	A	A	A	C	C	C	C	C	?	?	A	A	A	C	A	?	A	A
ETHYLHEXYL DIPHENYL PHOSPHATE	C ₂₀ H ₂₇ PO ₄	1241-94-7	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
ETHYLMETHYL KETONE	C ₄ H ₈ O	78-93-3	B	C	B	C	C	B	B	C	C	C	C	C	?	?	?	?	?	?	A	?	?	?
FAECES			A	A	A	?	A	A	A	A	A	A	A	A	?	?	?	?	?	?	A	A	A	?
FERRIC OXIDE	Fe ₂ O ₃	1309-37-1	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
FERRIFEROUS CHLORIDE (338 K)			A	A	A	?	A	A	A	?	B	?	?	?	?	?	?	?	?	?	A	?	?	?
FERRO HYDROXIDE	Fe(OH) ₃	1309-33-7	C	C	A	A	?	A	A	?	A	?	?	?	?	?	?	?	?	?	?	?	?	?
FERROUS SULPHATE	FeSO ₄ ·7H ₂ O	7782-63-0	A	A	A	A	A	A	A	B	A	A	A	B	A	?	A	?	?	?	A	A	?	?
FLEXOL 300 (dioctyl phthalate - DOP)	C ₂₄ H ₃₈ O ₄	117-81-7	C	C	C	C	A	C	C	C	C	B	C	C	?	?	?	?	?	?	A	?	?	?
FLUOBORIC			A	B	A	A	?	A	A	A	A	A	B	A	?	?	A	?	?	?	A	?	?	?
FLUORIC ACID	HF	7664-39-3	C	C	B	A	C	A	A	?	?	?	?	?	?	C	C	C	C	A	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
FLUOBORIC ACID 65%	HBF ₄	16872-11-0	C	C	C	A	C	A	A	A	A	A	B	A	?	?	A	?	?	A	A	?	?	?
FLUOROBENZENE	C ₆ H ₆ F	462-06-6	C	C	C	C	C	C	C	C	C	A	C	C	?	?	?	?	?	?	A	?	?	?
FLUOROSILICIC ACID	H ₂ SiF ₆	16961-83-4	?	C	?	A	C	A	A	C	A	A	B	C	?	?	?	A	?	?	A	?	?	?
FLUOROSILICIC ACID 50%	H ₂ SiF ₆	16961-83-4	?	C	?	A	C	A	A	C	A	A	B	C	?	?	?	A	?	?	A	?	?	?
FORMALDEHYDE 37%	CH ₂ O	50-00-0	A	B	A	B	C	A	A	A	A	A	B	A	?	?	A	A	A	A	A	A	A	A
FORMALDEHYDE 40% (343 K)	CH ₂ O	50-00-0	C	C	A	C	C	A	A	A	A	A	B	A	?	?	A	A	A	?	A	A	A	?
FORMAMIDE (FORMYLAMINE)	CH ₃ NO	75-12-7	A	B	A	A	B	A	A	?	A	C	?	?	?	?	A	A	A	?	A	?	?	?
FORMIC ACID	HCOOH	64-18-6	C	C	B	C	C	A	A	C	C	A	C	C	A	A	B	C	C	A	A	A	A	B
FREON 11	CCl ₃ F	75-69-4	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A
FREON 112	C ₂ Cl ₄ F ₂	76-12-0	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	?	?	A	A	?	?
FREON 113	C ₂ Cl ₃ F ₃	76-13-1	C	C	C	C	C	C	C	C	C	C	C	C	C	?	A	?	?	?	A	A	?	?
FREON 114	C ₂ Cl ₂ F ₄	76-14-2	C	C	C	C	C	C	C	C	C	C	?	C	C	?	A	A	?	?	A	A	?	?
FREON 115	C ₂ ClF ₅	76-15-3	C	C	C	C	C	C	C	C	C	C	B	?	C	A	A	A	?	?	A	A	?	?
FREON 12 (LIQUID)	CCl ₂ F ₂	75-71-8	C	C	C	C	C	C	C	C	C	B	?	C	C	A	A	A	A	A	A	A	A	A
FREON 13	CClF ₃	75-72-9	C	C	C	C	C	C	C	C	A	A	?	C	C	A	A	A	?	?	A	A	?	?
FREON 14	CF ₄	75-73-0	C	C	C	C	C	C	C	C	A	A	?	C	C	A	A	?	?	?	A	A	?	?
FREON 21	CHCl ₂ F	75-43-4	C	C	C	C	C	C	C	C	B	C	?	C	C	A	A	A	?	B	A	B	A	?
FREON 22	CHClF ₂	75-45-6	C	C	C	C	C	C	C	C	A	C	?	C	C	A	A	A	?	A	?	A	?	A
FREON 31	CH ₂ ClF	593-70-4	C	C	C	C	C	C	C	C	A	C	?	C	C	A	A	A	?	?	A	A	?	?
FREON C 316	C ₄ Cl ₂ F ₆	356-18-3	C	C	C	C	C	C	C	C	A	A	?	C	C	A	A	A	?	?	A	A	?	?
FREON C 318	C ₄ F ₈	115-25-3	C	C	C	C	C	C	C	C	A	A	?	C	C	A	A	A	?	?	A	A	?	?
FUELOIL			C	B	C	C	A	C	C	C	B	A	B	C	A	A	A	A	A	A	A	A	A	A
FURAN	C ₄ H ₄ O	110-00-9	C	C	C	C	C	C	C	C	C	A	A	C	?	A	A	A	?	?	A	A	C	?
FURFURAL	C ₄ H ₃ OCHO	98-01-1	C	C	C	C	C	A	A	C	B	C	C	C	B	?	A	A	A	A	A	A	A	A
GALLNUTOIL			B	C	B	A	?	?	?	?	?	?	?	?	?	A	A	A	?	A	A	?	?	?
GARLIC		977001-81-2	A	A	?	?	?	?	?	?	?	?	?	?	?	A	A	A	A	A	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
GASOLINE OCTANE 100		8006-61-9	C	C	C	C	B	C	C	C	B	A	C	C	B	A	A	A	A	?	A	B	A	A
GASOLINE OCTANE 65		8006-61-9	C	C	C	B	B	C	C	?	B	A	?	?	B	A	A	A	A	?	A	B	A	A
GELATIN (GLUE)		9000-70-8	A	A	A	A	?	A	A	A	A	A	A	A	A	?	A	A	A	A	A	A	A	A
GLUCOSE	$C_6H_{12}O_6$	50-99-7	A	A	A	A	?	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	A
GLUE			B	A	A	A	?	A	A	A	A	A	A	A	?	A	A	A	A	?	A	A	?	A
GLYCERINE	$C_3H_8O_3$	56-81-5	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	A	A	A	A	A	A
GLYCEROL	$C_3H_8O_3$	56-81-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
GLYCOL	$C_2H_6O_2$	107-21-1	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	A	A	?
GRAINSEED OIL			C	B	C	C	A	?	?	C	A	A	?	C	?	A	A	A	?	?	A	A	?	?
GREEN SULPHATE LIQUOR			A	B	A	A	?	?	A	B	A	A	A	A	?	?	A	A	B	?	A	A	?	?
HEPTANE	C_7H_{16}	142-82-5	C	C	C	C	A	C	C	C	B	A	C	C	B	A	A	A	A	A	A	A	A	A
HEXALDEHYDE	$C_6H_{14}O$	66-25-1	C	C	C	C	B	?	?	B	A	C	C	B	?	A	A	A	?	?	A	?	?	?
HEXANE	C_6H_{14}	110-54-3	C	C	C	C	A	C	C	C	B	A	C	C	?	A	A	A	A	A	A	C	A	A
HEXENE	C_6H_{12}	592-41-6	C	B	C	C	A	C	C	C	B	A	?	C	?	A	?	?	?	?	A	?	?	?
HEXYL ALCOHOL	$C_6H_{13}OH$	111-27-3	B	B	C	C	A	?	?	B	B	A	B	B	A	A	A	A	A	A	A	A	A	?
HOG FAT			C	B	C	B	A	?	?	B	B	A	B	B	?	?	A	?	?	?	A	A	?	?
HYDRAULIC OIL ESTER BASE			B	C	C	C	B	C	C	C	C	C	C	C	?	A	A	A	?	?	A	A	?	?
HYDRAULIC OIL MINERAL BASE		8012-95-1	C	B	C	C	A	C	C	C	B	A	C	C	A	A	A	A	A	?	A	A	?	A
HYDRAULIC OIL PYDRAUL BASE			C	C	C	C	?	C	C	C	C	A	C	C	?	A	A	A	?	?	A	A	?	?
HYDRAULIC OIL SKYDROL BASE			C	C	C	C	A	C	C	?	?	?	?	?	?	A	A	A	?	?	A	A	?	?
HYDROCYANIC ACID	HCN	74-90-8	B	C	A	A	B	A	A	B	B	A	B	B	A	?	A	?	C	?	A	A	A	?
HYDROBROMIC ACID	HBr	10035-10-6	B	B	A	A	C	A	A	C	C	A	C	C	A	?	A	?	A	?	A	A	A	?
HYDROBROMIC ACID 40%	HBr	10035-10-6	C	C	B	A	C	A	A	C	C	A	C	C	A	C	C	C	B	A	A	A	A	?
HYDROCHLORIC ACID (338 K)	HCl	7647-01-0	C	C	A	A	C	A	A	C	A	A	A	C	A	?	?	?	?	?	?	A	A	?
HYDROCHLORIC ACID 15%	HCl	7647-01-0	A	A	A	A	B	A	A	C	A	A	A	C	A	C	C	B	C	A	A	A	A	A
HYDROCHLORIC ACID 30%	HCl	7647-01-0	B	C	A	A	C	A	A	C	B	A	B	C	A	C	C	C	C	?	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
HYDROCHLORIC ACID 33% (323 K)	HCl	7647-01-0	C	C	B	A	C	A	A	C	B	A	C	A	?	?	?	?	?	?	?	?	?
HYDROCHLORIC ACID CONC. 38%	HCl	7647-01-0	C	C	A	A	C	A	A	C	B	A	C	A	C	C	C	C	A	A	A	A	?
HYDROFLUORIC ACID	HF	7664-39-3	C	C	B	A	C	A	B	A	A	C	B	C	C	C	C	C	A	A	A	A	A
HYDROFLUOSILICIC ACID	H ₂ SiF ₆	16961-83-4	A	B	A	C	C	?	B	B	A	C	B	?	?	C	?	C	B	A	A	?	B
HYDROGEN FLUORIDE (COLD)	HF	7664-39-3	C	C	B	A	C	A	C	C	A	?	C	?	?	C	?	C	?	A	C	A	?
HYDROGEN FLUORIDE (HOT)	HF	7664-39-3	C	C	C	C	C	C	C	C	A	?	C	?	C	C	?	?	?	A	C	?	?
HYDROGEN GAS (338 K)	H ₂	1333-74-0	A	A	A	A	?	A	A	C	A	B	C	A	A	A	?	?	A	A	A	A	?
HYDROGEN GAS (COLD)	H ₂	1333-74-0	A	A	A	A	A	A	C	A	A	B	C	A	A	A	?	?	A	A	A	A	?
HYDROGEN PEROXIDE 10%	H ₂ O ₂	7722-84-1	C	C	A	A	C	C	A	C	A	B	A	A	?	A	A	B	A	A	A	A	A
HYDROGEN PEROXIDE 30%	H ₂ O ₂	7722-84-1	C	C	C	A	C	C	A	C	A	C	A	A	?	A	A	C	C	A	A	A	A
HYDROGEN PEROXIDE 88%	H ₂ O ₂	7722-84-1	C	C	C	A	C	C	B	C	A	C	B	A	A	A	A	C	C	A	A	A	A
HYDROGEN SULPHIDE	H ₂ S	7783-06-4	A	B	A	A	A	A	C	A	B	A	C	A	A	A	?	?	A	A	A	A	?
HYDROGEN SULPHIDE (DRY, COLD)	H ₂ S	7783-06-4	A	C	A	A	A	A	C	A	C	A	C	A	?	A	?	?	?	A	A	?	?
HYDROGEN SULPHIDE (DRY, WARM)	H ₂ S	7783-06-4	A	C	A	A	?	A	C	B	C	A	C	A	?	A	?	?	?	A	A	?	?
HYDROGEN SULPHIDE (MOIST, COLD)	H ₂ S	7783-06-4	A	C	A	A	B	A	C	A	B	A	C	A	?	A	?	?	?	A	A	?	?
HYDROGEN SULPHIDE (MOIST, WARM)	H ₂ S	7783-06-4	A	C	A	A	B	A	C	B	B	A	C	A	?	A	?	?	?	A	A	?	?
HYDROGEN SUPEROXIDE 35%	HO ₂		?	?	A	A	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?
INK OIL			C	B	C	A	A	C	?	A	A	?	?	?	A	A	B	C	?	A	?	?	A
IODINE	I ₂	7553-56-2	C	C	B	A	?	A	C	C	A	B	C	?	C	A	C	?	?	A	A	A	B
IRON(II) ACETATE SOLUTION	Fe(C ₂ H ₃ O ₂) ₂	3094-87-9	A	A	A	A	B	A	A	C	?	C	?	?	?	?	?	?	?	?	?	?	?
IRON CHLORIDE	FeCl ₃	7705-08-0	A	A	A	A	?	A	B	B	A	B	A	?	C	C	?	?	A	A	A	?	?
IRON CHLORIDE SULPHATE	FeClSO ₄	12410-14-9	B	?	A	A	?	A	B	B	A	B	A	?	?	?	?	?	?	?	?	?	?
IRON HYDROXIDE	Fe(OH) ₃	1309-33-7	C	C	A	A	?	A	A	?	B	A	?	?	?	?	?	?	?	?	?	?	?
IRON and ZINC PHOSPHATE SOLUTION	FePO ₄ & Zn ₃ (PO ₄) ₂		A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
IRON NITRATE (338 K)	Fe(NO ₃) ₃	7782-61-8	A	A	A	A	?	A	B	A	A	?	B	?	?	A	?	?	?	A	A	?	?
IRON SULPHATE	FeSO ₄ ·7H ₂ O	7782-63-0	A	A	A	A	A	A	B	A	A	A	B	?	?	A	?	?	?	A	A	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy	
ISOAMYLACETATE	C ₇ H ₁₄ O ₂	123-92-2	C	C	C	B	C	C	C	C	C	?	C	?	?	A	A	A	?	A	?	?	?	
ISOAMYLALCOHOL	C ₅ H ₁₂ O	123-51-3	C	C	C	B	C	C	C	A	A	?	C	?	?	?	?	?	?	A	?	?	?	
ISOAMYLFORMATE	C ₅ H ₁₂ O	110-45-2	C	C	C	B	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?	
ISOBUTENE	C ₄ H ₈	115-11-7	C	C	C	?	C	C	C	B	A	B	C	?	C	A	?	?	?	A	A	?	?	
ISOBUTYL ACETATE	C ₆ H ₁₂ O ₂	110-19-0	C	C	C	B	C	C	?	C	C	?	?	?	C	A	A	A	?	A	?	?	?	
ISOBUTYL ALCOHOL	C ₄ H ₁₀ O	78-83-1	B	C	B	B	A	A	A	A	A	B	A	?	A	?	A	?	?	A	A	A	?	
ISOBUTYLALDEHYDE	C ₄ H ₈ O	78-84-2	C	C	C	C	?	?	C	C	C	?	C	?	?	?	?	?	?	A	?	?	?	
ISOBUTYL FORMATE	C ₅ H ₁₀ O ₂	542-55-2	C	C	C	B	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?	
ISOCYANATE	...NCO		C	C	C	C	?	?	?	?	B	C	?	?	?	?	?	?	?	?	?	?	?	
ISODECANE	C ₁₀ H ₂₂	34464-38-5	C	C	C	A	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?	
ISODODECANE	C ₁₂ H ₂₆	31807-55-3	C	C	C	A	C	C	C	B	A	?	C	?	?	?	?	?	?	A	?	?	?	
ISOOCANE	C ₈ H ₁₈	540-84-1	C	B	C	A	C	C	C	B	A	B	C	?	A	A	?	?	?	A	A	?	?	
ISOPROPYL ACETATE	C ₅ H ₁₀ O ₂	108-21-4	B	C	B	C	B	B	C	C	C	C	C	B	?	A	A	A	?	A	A	?	A	
ISOPROPYL ALCOHOL	C ₃ H ₈ O	67-63-0	A	B	A	C	B	A	A	B	B	A	A	A	A	A	?	A	A	A	A	A	?	
ISOPROPYL CHLORIDE	C ₃ H ₇ Cl	75-29-6	C	C	C	A	C	C	C	C	A	?	C	?	C	A	C	A	?	A	C	?	?	
ISOPROPYL ETHER	C ₆ H ₁₄ O	108-20-3	C	C	C	B	C	C	C	C	C	A	C	B	A	A	A	?	?	A	C	A	C	
JET FUELS (JP1 TILL JP5)		94114-58-6	C	B	C	A	C	C	C	C	A	B	C	A	C	A	A	A	A	A	A	A	A	A
KEROSENE		8008-20-6	C	B	C	A	C	C	C	B	A	C	C	A	A	A	A	?	A	A	A	A	A	A
LACQUERS			C	?	C	?	?	?	C	C	C	C	C	A	?	A	C	A	?	A	?	?	?	A
LACQUER SOLVENTS			C	?	C	A	C	C	C	C	C	C	C	?	?	A	C	A	?	A	B	C	?	A
LACTIC ACID	C ₄ H ₁₀ O ₄	50-21-5	B	?	B	A	C	A	A	A	A	A	A	A	?	A	A	A	?	A	A	?	?	A
LACTOL	C ₁₃ H ₁₂ O ₂	93-43-6	C	B	C	C	?	?	?	B	A	?	?	?	A	A	A	?	?	A	?	?	?	
LARD		61789-99-9	C	B	C	B	A	A	A	B	A	B	A	A	?	A	A	A	A	A	B	A	A	A
LAURYL ETHER SULPHATE	[C ₁₂ H ₂₅ (OCH ₂ CH ₂) _n OSO ₃]	9004-82-4 (Na-salt)	B	C	A	B	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
LEAD ACETATE	Pb(C ₂ H ₃ O ₂) ₂ ·3H ₂ O	6080-56-4	A	A	A	B	A	A	C	A	A	B	C	?	?	A	C	?	A	A	A	?	A	A
LEAD ARSEIMATE	PbHAsO ₄	7784-40-9	A	B	A	A	?	A	A	C	B	?	B	C	?	A	A	?	?	A	A	?	A	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
LEAD NITRATE	Pb(NO ₃) ₂	10099-74-8	A	A	A	A	A	A	A	B	A	A	A	B	?	C	C	C	A	A	A	A	A	?
LEAD SULPHAMATE	Pb((NH) ₂ SO ₃) ₂		A	A	A	?	?	A	A	B	A	A	A	B	?	?	?	?	?	?	A	A	?	A
LIME SULPHUR			A	A	A	?	?	A	A	B	A	A	A	B	?	?	A	C	?	?	A	A	?	?
LIME WATER	CaH ₂ O ₂	1305-62-0	A	A	A	A	A	A	A	B	A	A	A	B	?	A	A	A	?	A	A	?	?	?
LINSEED OIL		8001-26-1	C	C	C	B	A	C	C	B	A	A	?	B	A	?	A	A	A	A	A	A	A	?
LIQUID MANURE			A	A	A	A	?	A	A	?	A	A	?	?	?	A	A	A	?	?	A	A	?	?
LITHIUM HYDROXIDE	LiOH	1310-66-3	A	A	A	A	A	A	A	C	B	?	?	C	?	?	A	?	?	?	A	A	A	?
LUBRICATING OIL		8012-95-1	C	B	C	B	A	C	C	C	B	A	B	C	A	A	A	A	A	?	A	A	?	A
LYE (CAUSTIC)			A	A	A	A	?	A	A	A	A	B	A	A	?	?	A	?	?	?	A	A	A	?
MAGNESIUM CARBONATE	MgCO ₃	39409-82-0	A	A	A	A	A	A	A	?	A	A	B	?	?	A	A	A	A	A	A	A	A	?
MAGNESIUM CHLORIDE	MgCl ₂	7786-30-3	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	?	?	A	A	A	A	?
MAGNESIUM HYDROXIDE	Mg(OH) ₂	1309-42-8	A	A	A	A	A	A	A	B	A	A	A	B	A	A	A	?	A	A	A	A	A	A
MAGNESIUM NITRATE	Mg(NO ₃) ₂ ·6H ₂ O	13446-18-9	A	A	A	A	A	A	A	B	A	A	B	B	?	?	A	?	A	A	A	A	A	?
MAGNESIUM SULPHATE	MgSO ₄	10034-99-8	A	A	A	A	A	A	A	A	A	A	C	A	A	?	A	?	A	A	A	A	A	?
MAGNESIUM SULPHIDE	MgS	12032-36-9	?	?	A	A	?	A	A	C	B	C	C	C	?	?	?	?	?	?	?	?	?	?
MAGNESIUM SULPHITE	MgSO ₃	7757-88-2	?	?	A	A	?	A	A	A	A	A	?	A	?	?	?	?	?	?	?	?	?	?
MANGANESE SULPHATE	MnSO ₄ ·H ₂ O	10034-96-5	A	A	A	A	A	A	A	C	A	A	C	C	?	?	?	?	?	?	A	A	?	?
MARGARINE OIL			C	A	C	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
.... MERCAPTANE (mercaptane group)	~SH (C ₂ H ₆ S)	75-08-1	C	C	C	C	?	C	C	?	C	C	?	?	?	?	?	?	?	?	?	?	?	?
MERCURY	Hg	7439-97-6	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A	C	A	A	A	A	A	A
MERCURY(I) CHLORIDE	Hg ₂ Cl ₂	10112-91-1	A	B	A	A	?	A	A	A	B	A	?	A	A	C	C	C	C	A	A	A	?	A
MERCURY(II) CHLORIDE	HgCl ₂	7487-94-7	A	B	A	A	?	A	A	A	B	A	?	A	A	C	C	C	C	A	A	A	?	A
MERCURY CYANIDE	Hg(CN) ₂	592-04-1	A	B	A	A	?	A	A	?	?	?	?	?	?	?	A	C	B	?	A	A	A	A
METHANOL (methyl alcohol)	CH ₃ OH	67-56-1	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
METHYL ACETATE	C ₃ H ₆ O ₂	79-20-9	B	C	B	C	C	B	C	B	C	B	C	C	B	A	A	A	A	A	C	A	B	A
METHYL ACETONE	C ₄ H ₈ O	78-93-3	B	C	B	C	C	B	B	?	C	C	A	?	?	?	A	A	?	C	A	?	C	B

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
METHYL ACETOACETATE	C ₅ H ₈ O ₃	105-45-3	C	C	C	C	C	C	C	B	C	C	C	B	C	C	A	A	A	A	A	A	A	?
METHYL AMINE	CH ₃ NH ₂	74-89-5	C	C	C	C	C	C	C	?	C	B	C	?	?	A	A	A	A	A	A	C	C	?
METHYL AMYLACETATE	C ₈ H ₁₇ O ₂		C	C	C	C	B	C	C	?	?	?	?	?	?	?	A	A	A	A	A	?	?	?
METHYLAMYL CARBINOL	C ₇ H ₁₆ O		C	C	C	C	C	C	C	?	?	B	?	?	?	A	A	A	A	A	A	?	?	?
METHYL ANILINE	C ₇ H ₁₀ N	100-61-8	C	C	C	C	C	C	C	?	A	B	?	?	?	?	?	?	?	?	?	?	?	?
METHYL BROMIDE	CH ₃ Br	74-83-9	C	C	C	C	C	C	C	?	C	A	C	?	B	A	A	A	A	?	?	A	C	A
METHYL BUTYL KETONE	C ₆ H ₁₂ O	591-78-6	B	B	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	?	C	C
METHYL BUTYRATE	C ₅ H ₁₀ O ₂	623-42-7	C	C	C	C	C	C	C	?	C	?	?	?	?	?	?	?	?	?	?	?	?	?
METHYLCELLSOLVE (=2-methoxyethanol)	C ₃ H ₈ O ₂	109-86-4	C	C	C	C	?	A	A	C	B	C	A	C	?	?	A	A	A	A	A	A	A	B
METHYLCHLORIDE	CH ₃ Cl	74-87-3	C	C	C	C	C	C	C	C	C	C	C	C	C	?	A	C	A	C	A	C	A	A
METHYL ETHYL KETONE (MEK)	C ₄ H ₈ O	78-93-3	C	C	C	C	C	C	B	C	C	C	C	C	C	A	A	A	A	C	A	C	C	B
METHYLFORMATE	C ₂ H ₄ O ₂	107-31-3	C	C	C	C	C	C	B	C	B	C	?	C	A	A	A	A	?	?	?	?	?	?
METHYL IODIDE	CH ₃ I	74-88-4	C	C	C	C	C	C	C	?	C	?	?	?	?	?	A	C	A	?	A	?	?	?
METHYLISOBUTYL CARBINOL	C ₆ H ₁₄ O	108-11-2	C	C	C	C	C	?	?	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?
METHYLISOBUTYL KETONE	C ₆ H ₁₂ O	108-10-1	B	B	C	C	C	C	C	C	C	C	C	C	B	A	A	A	A	?	A	A	A	B
METHYLISOBUTYRATE	C ₅ H ₁₀ O ₂	547-63-7	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
METHYL ISOPROPYL KETONE	C ₄ H ₁₀ O	563-80-4	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	?	?	?	A	B
METHYL METHACRYLATE	C ₅ H ₈ O ₂	80-62-6	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	?	?	?	?	A
METHYL OLEATE	C ₁₉ H ₄₀ O ₂	112-62-9	C	C	C	C	A	C	C	?	C	A	?	?	?	?	?	?	?	?	?	?	?	?
METHYL PROPIONATE	C ₄ H ₈ O ₂	584-12-1	C	C	C	C	C	C	C	?	?	?	?	?	?	A	?	?	?	?	?	?	?	?
METHYL SALICYLATE	C ₈ H ₈ O ₃	119-36-8	C	C	C	C	?	C	C	?	C	B	C	?	?	A	?	A	A	?	A	?	?	?
METHYLENE CHLORIDE	CH ₂ Cl ₂	75-09-2	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	C	A	C	A	A
MILK			B	A	B	A	A	A	A	A	A	A	A	A	A	?	A	A	C	?	A	C	?	A
MINERAL OIL		8012-95-1	C	A	C	A	A	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
MOLASSES		68476-78-8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
MONOBROMOBENZENE	C ₆ H ₅ Br	108-86-1	C	C	C	C	C	C	C	A	C	A	C	A	?	?	?	?	?	?	?	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
MONOCHLOROANILINE	C ₆ H ₄ NH ₂ Cl	106-47-8 (para-)	C	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?
MONOCHLOROBENZENE	C ₆ H ₅ Cl	108-90-7	C	C	C	C	C	C	C	C	C	A	C	C	?	A	A	?	?	C	A	?	?	?
MONOCHLORODIFLUOROMETHANE	CHClF ₂	75-45-6	C	C	C	C	C	C	C	C	A	A	C	C	?	?	A	?	?	?	A	?	?	?
MONOCHLOROTRIFLUOROMETHANE	CClF ₃	75-72-9	C	C	C	C	C	C	C	C	A	A	C	C	?	?	?	?	?	?	A	?	?	?
MONOTHANOLAMINE	C ₂ H ₄ NH ₂ OH	141-43-5	C	C	C	C	C	C	C	B	B	C	?	B	?	A	A	A	A	?	A	?	A	B
MONOSODIUM GLUTAMATE	Na[C ₅ H ₈ NO ₄]	142-47-2	C	A	A	B	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
MOTOR OIL			C	B	C	B	A	C	C	?	A	A	B	?	?	A	A	A	?	?	A	?	?	?
MURIATIC ACID (= hydrochloric acid)	HCl	7647-01-0	B	C	A	A	C	A	A	C	B	A	A	C	?	?	?	?	?	?	A	?	?	?
NAPHTA		8030-30-6	C	?	C	C	A	C	C	C	C	A	C	C	B	A	A	A	A	A	A	A	A	?
NAPHTALENE	C ₁₀ H ₈	91-20-3	C	C	C	C	B	C	C	C	C	A	C	C	A	A	A	A	A	A	C	A	A	A
NAPHTHENE	C ₁₀ H ₈	91-20-3	C	C	C	C	B	C	C	C	C	A	C	C	?	A	A	A	?	?	A	?	?	?
NATURAL GAS	CH ₄	8006-14-2	B	A	B	A	A	A	A	A	A	A	B	A	B	A	A	A	?	?	A	A	?	?
NATURAL GAS (DRY)	CH ₄	8006-14-2	B	A	B	A	A	A	A	A	A	A	B	A	?	A	A	?	?	?	A	A	?	?
NATURAL GAS (WET)	CH ₄	8006-14-2	B	A	B	A	A	A	A	A	A	A	B	A	?	A	A	?	?	?	A	A	?	?
NICKEL CHLORIDE	NiCl ₂	7718-54-9	A	A	A	A	A	A	A	A	B	A	B	A	A	C	C	C	C	C	A	A	?	A
NICKEL HYDROXIDE	Ni(OH) ₂	12054-48-7	B	?	A	A	?	A	A	A	B	A	B	A	?	?	?	?	?	?	?	?	?	?
NICKEL NITRATE	Ni(NO ₃) ₂	14216-75-2	A	A	A	A	?	A	A	?	A	A	?	?	?	C	C	C	?	?	A	A	?	?
NICKEL SULPHATE	NiSO ₄	7786-81-4	A	A	A	A	?	A	A	A	A	A	A	A	A	?	A	C	C	C	A	A	?	A
NICOTINE BENTONITE			C	B	C	C	?	?	?	?	A	C	?	?	?	?	?	?	?	?	?	?	?	?
NICOTINE SULPHATE	C ₁₀ H ₁₄ N ₂ O ₅ .5H ₂ SO ₄	65-30-5	A	A	A	A	?	?	?	?	A	C	?	?	?	?	?	?	?	?	?	?	?	?
NITRIC ACID 2%	HNO ₃	7697-37-2	C	C	A	A	A	A	A	A	B	A	A	A	A	?	A	C	C	C	A	A	A	B
NITRIC ACID 10%	HNO ₃	7697-37-2	C	C	A	A	B	A	A	B	B	A	A	B	A	?	A	A	C	C	A	A	A	A
NITRIC ACID 25%	HNO ₃	7697-37-2	C	C	B	A	C	B	C	C	C	A	B	C	A	?	?	C	C	C	A	A	A	C
NITRIC ACID 40%	HNO ₃	7697-37-2	C	C	B	B	C	B	C	C	C	A	B	C	A	?	A	C	C	C	A	A	A	C
NITRIC ACID 50%	HNO ₃	7697-37-2	C	C	C	C	C	?	?	C	C	B	C	C	A	?	A	C	C	C	B	A	C	C
NITRIC ACID 60%	HNO ₃	7697-37-2	C	C	C	C	C	C	C	C	C	B	C	C	A	?	A	C	C	C	B	A	C	C

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy	
NITRIC ACID 70%	HNO ₃	7697-37-2	C	C	C	C	C	C	C	C	C	B	C	C	A	?	A	C	C	B	A	C	C	C	
NITRIC ACID (FUMING)	HNO ₃	7697-37-2	C	C	C	C	C	C	C	C	C	B	C	C	?	C	C	A	C	?	?	C	C	?	
NITRO-BENZENE	C ₆ H ₅ NO ₂	98-95-3	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	?	A	A	A	A	B
NITROGLYCERINE	C ₃ H ₅ N ₃ O ₉	55-63-0	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	
NITROSYL CHLORIDE	CINO	2696-92-6	C	C	C	C	C	C	C	?	?	?	?	?	?	?	A	?	?	?	?	?	?	?	
NITROETHANE	C ₂ H ₅ NO ₂	79-24-3	C	C	C	C	C	?	?	C	C	C	C	C	?	?	A	A	A	?	A	B	A	?	
NITROMETHANE	CH ₃ NO ₂	75-52-5	C	C	C	C	C	?	?	C	C	C	C	C	A	A	A	A	A	?	A	B	A	?	
NITRO-OCTANE	C ₈ H ₁₇ NO ₂	629-37-8	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	
NITROPROPANE	C ₃ H ₇ NO ₂	79-46-9	C	C	C	C	C	?	?	C	C	C	C	C	?	?	A	?	?	?	?	?	?	?	
NITROUS ACID	HNO ₂	7782-77-6	C	C	A	A	C	A	A	A	?	A	A	A	?	?	A	?	?	?	?	A	A	?	
OCTANE	C ₈ H ₁₈	111-65-9	C	B	C	C	A	C	C	C	B	A	?	C	?	A	?	?	?	?	?	A	C	A	
OCTYL ALCOHOL	C ₈ H ₁₈ O	111-87-5	C	C	C	C	A	C	C	B	B	C	B	C	?	A	A	A	?	?	?	?	?	?	
OCTYL ALDEHYDE	C ₈ H ₁₆ O	124-13-0	C	C	C	C	B	C	C	B	B	?	B	?	?	?	?	?	?	?	?	?	?	?	
OLEIC ACID	C ₁₈ H ₃₄ O ₂	112-80-1	C	C	C	C	A	B	B	C	B	A	B	C	?	?	?	?	?	?	B	A	?	?	
OLEINIC ACID	C ₁₈ H ₃₄ O ₂	112-80-1	C	C	C	C	A	B	B	C	B	A	B	C	?	?	A	A	?	?	?	?	?	?	
OLEUM (fuming sulfuric acid)	H ₂ SO ₄ + SO ₃	8014-95-7	C	C	B	B	C	B	B	C	C	B	C	C	?	?	?	?	?	?	C	A	A	?	
OLIVE OIL		8001-25-0	C	B	C	C	A	?	?	B	B	A	B	B	A	?	A	A	A	A	A	A	A	?	
OXALIC ACID	C ₂ H ₂ O ₄	6153-56-6	A	B	A	A	C	A	A	B	B	A	B	B	A	?	C	A	C	A	A	A	A	A	
OXYGEN	O ₂	7782-44-7	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	A	
OZONE	O ₃	10028-15-6	C	C	A	A	?	A	A	A	B	A	A	A	A	A	A	?	?	B	A	C	A	?	
PALMITIC ACID	C ₁₆ H ₃₂ O ₂	57-10-3	C	B	C	C	A	A	A	C	B	A	C	C	?	A	A	A	A	?	A	A	A	?	
PALM OIL		8002-75-3	C	B	C	C	A	A	A	C	C	A	B	C	A	A	A	?	A	?	A	?	?	?	
PARAFORMALDEHYDE	HO(CH ₂ O) _n H	30525-89-4	C	B	C	C	?	?	?	?	B	C	?	?	?	?	A	?	A	?	A	?	?	?	
PARAFFIN OIL 50%	C ₁₂ H ₂₆ - C ₁₈ H ₃₈	8002-74-2	C	C	C	C	A	C	C	C	B	A	A	C	A	A	A	A	A	?	A	A	A	A	
PENTANE	C ₅ H ₁₂	109-66-0	C	B	C	C	A	C	C	C	A	A	C	C	B	?	?	?	?	?	?	?	?	?	
PENTACHLOROPHENOL	C ₆ Cl ₅ OH	87-86-5	C	C	C	C	C	C	C	?	B	A	C	?	?	A	?	?	?	?	?	?	?	?	

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
PERACETIC ACID 15% (peroxyacetic acid)	CH ₃ COO ₂ H	79-21-0	C	C	A	A	C	A	A	B	B	A	B	B	?	?	?	?	?	?	A	A	?	?
PERCHLORIC ACID	HClO ₄	7601-90-3	C	C	C	B	C	A	A	C	B	A	C	C	A	?	A	?	?	B	A	?	?	?
PERCHLORO ETHENE	C ₂ Cl ₄	127-18-4	C	C	C	C	C	C	C	B	C	A	C	B	B	A	A	?	?	?	A	?	?	?
PETROLEUM (to 363 K)		8006-61-9	C	C	C	C	A/B	C	C	C	B	A	B	C	?	A	A	A	A	?	A	C	A	?
PHENOL	C ₆ H ₅ OH	108-95-2	C	C	C	C	B	C	C	C	C	A	C	C	A	?	A	A	A	?	A	A	A	B
PHENYL ETHYL ETHER	C ₈ H ₁₀ O	103-73-1	C	C	C	C	C	C	C	C	C	C	?	C	?	?	?	?	?	?	A	?	?	?
PHOSPHORIC ACID 7% (50 °C)	H ₃ PO ₄	7664-38-2	A	A	A	A	A	A	A	B	A	A	A	B	A	?	?	?	?	?	?	?	?	?
PHOSPHORIC ACID 7% (70 °C)	H ₃ PO ₄	7664-38-2	B	B	A	A	B	A	A	B	A	A	B	B	A	?	?	?	?	?	?	?	?	?
PHOSPHORIC ACID 8% (80 °C)	H ₃ PO ₄	7664-38-2	C	C	A	A	C	A	A	B	A	A	B	B	A	?	?	?	?	?	?	?	?	?
PHOSPHORIC ACID 50%	H ₃ PO ₄	7664-38-2	A	B	A	A	C	A	A	B	A	A	B	B	A	?	A	C	C	A	A	?	A	?
PHOSPHORIC ACID 75%	H ₃ PO ₄	7664-38-2	A	B	A	A	C	A	A	C	A	A	B	C	A	?	?	C	C	A	A	A	A	?
PHOSPHORIC ACID 85%	H ₃ PO ₄	7664-38-2	A	B	A	A	C	A	A	C	A	A	B	C	A	?	?	C	C	A	A	A	A	?
PHOSPHOR TRIBUTYRATE	(C ₄ H ₉) ₃ PO ₄	126-73-8	?	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PHOSPHOROUS OXYCHLORIDE	POCl ₃	10025-87-3	C	C	C	C	C	C	C	?	C	?	?	?	?	?	?	?	?	?	?	?	?	?
PICKLE SOL. (20% NITR. ACID, 4% HF)	HNO ₃ + HF		C	C	B	A	C	?	?	C	C	B	?	C	?	?	?	?	?	?	A	?	?	?
PICRIC ACID	C ₆ H ₃ N ₃ O ₇	88-89-1	B	C	A	A	C	A	A	C	B	A	C	C	A	?	A	A	B	A	?	A	C	A
PINE OIL		8002-09-3	C	B	C	C	?	?	?	C	C	A	C	C	A	?	A	A	A	?	A	?	?	A
PINE TREE OIL			C	B	C	C	?	?	?	C	C	A	C	C	?	?	?	?	?	?	A	?	?	?
POLYACRYLIC ACID		2594322	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
POLYALKYLENE GLYCOL			C	B	C	B	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
POLYALUMINIUM CHLORIDE	[Al ₂ (OH) ₄ Cl _{6-x}] _n	1327-41-9	B	A	B	?	?	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
POLYVINYL ACETATE	C ₄ H ₆ O ₂	9003-20-7	A	?	A	?	?	?	?	C	B	A	?	C	A	?	?	?	?	?	?	?	?	?
POLYVINYL ALCOHOL (CONCENTRATED)	C ₂ H ₄ O	9002-89-5	C	C	C	?	?	?	?	?	?	A	?	?	A	?	?	?	?	?	?	?	?	?
POLYVINYL ALCOHOL (SOLUTION)	C ₂ H ₄ O	9002-89-5	A	C	A	?	?	?	?	?	?	A	?	?	?	?	?	?	?	?	?	?	?	?
POTASSIUM BICHROMATE	K ₂ Cr ₂ O ₇	7778-50-9	B	B	A	A	B	A	A	A	A	A	B	A	?	?	?	?	?	?	?	?	?	?
POTASSIUM BORATE	KB ₂ O ₃	1332-77-0	A	A	A	A	?	A	A	?	A	A	B	?	?	?	A	?	?	?	A	A	A	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
POTASSIUM BROMIDE	KBr	7758-02-3	A	A	A	A	A	A	A	A	A	A	B	A	A	C	C	A	?	A	A	A	A	A
POTASSIUM CARBONATE	K ₂ CO ₃	584-08-7	A	A	A	A	A	A	A	B	A	A	B	B	A	?	A	C	A	A	A	A	A	A
POTASSIUM CHLORATE	KClO ₃	3811-04-9	B	B	A	A	B	A	A	B	A	A	B	B	?	?	A	C	A	A	A	A	?	A
POTASSIUM CHLORIDE	NaCl	7447-40-7	A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	C	A	A	A	A	?	A
POTASSIUM CYANIDE	KCN	151-50-8	A	A	A	A	A	A	A	A	B	A	A	A	?	A	A	B	A	A	A	A	?	A
POTASSIUM DICHROMATE	K ₂ Cr ₂ O ₇	7778-50-9	B	B	A	A	B	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	?	B
POTASSIUM HYDROXIDE	KOH	1310-58-3	A	B	A	A	A	A	A	C	A	A	B	C	A	?	A	C	A	?	?	?	?	A
POTASSIUM NITRATE	KNO ₃	7757-79-1	A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	?	B	A	A	A	?	A
POTASSIUM PERMANGANATE	KMnO ₄	7722-64-7	B	B	A	A	B	A	A	?	A	A	B	?	A	?	A	?	A	A	?	A	?	A
POTASSIUM SULPHATE	K ₂ SO ₄	7727-21-1	A	A	A	A	A	A	A	A	A	A	B	A	A	?	?	A	A	A	A	A	A	A
POTASSIUM SULPHITE	K ₂ SO ₃	10117-38-1	A	A	A	A	A	A	A	A	A	A	B	A	?	?	A	A	C	A	A	?	?	?
PRODUCER GAS (WOOD GAS)			B	A	B	A	?	?	?	B	B	A	A	B	?	A	A	A	?	A	A	A	?	?
PROPANE GAS	C ₃ H ₈	74-98-6	C	A	C	B	A	C	C	C	C	A	A	C	B	A	A	A	A	?	A	C	A	?
PROPANE LIQUID	C ₃ H ₈	74-98-6	C	A	C	B	A	C	C	C	C	A	A	C	?	A	A	A	?	A	A	A	A	A
PROPENE BROMIDE	C ₃ H ₅ Br	106-95-6	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	?	B	A	?	?
PROPIONIC ACID	C ₃ H ₆ O ₂	79-09-4	C	C	C	C	?	?	A	C	B	C	A	A	A	?	A	A	?	?	A	A	?	?
PROPIONITRILE	C ₃ H ₅ N	107-12-0	C	C	C	C	C	C	C	?	B	C	?	?	?	A	A	?	?	?	A	A	?	?
PROPYL ACETATE	C ₅ H ₁₀ O ₂	109-60-4	B	C	B	C	C	B	C	C	C	C	C	C	B	?	A	A	?	?	A	B	A	?
PROPYL ALCOHOL	C ₃ H ₇ OH	71-23-8	A	C	A	C	A	A	A	A	A	A	A	A	A	?	A	A	A	?	A	A	A	?
PROPYLBENZENE	C ₉ H ₁₂	103-65-1	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PROPYL DICHLORIDE	C ₃ H ₆ Cl ₂	78-87-5	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PROPYL FORMATE	C ₄ H ₈ O ₂	110-74-7	C	C	C	C	C	B	B	?	C	?	?	?	?	?	?	?	?	?	A	?	?	?
PROPYL PROPIONATE	C ₆ H ₁₂ O ₂	106-36-5	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PROPYLENE CARBONATE	C ₄ H ₆ O ₃	108-32-7	A	C	A	C	C	A	A	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PROPYLENE CHLOROHYDRINE	C ₃ H ₇ ClO	127-00-4	C	C	C	C	C	C	C	?	C	B	?	?	?	?	?	?	?	?	A	?	?	?
PROPYLENE CHLORIDE	C ₃ H ₇ Cl	107-05-1	C	C	C	C	C	C	C	?	C	B	?	?	?	?	?	?	?	?	A	?	?	?

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
PROPYLENE GLYCOL	C ₃ H ₈ (OH) ₂	57-55-6	A	A	A	A	A	A	A	B	A	B	A	A	A	A	A	A	A	A	A	A	?
PROPYLENE OXIDE	C ₃ H ₆ O	75-56-9	C	C	C	C	C	C	C	C	C	C	C	B	?	?	?	?	?	A	?	?	?
PROPYLENE DICHLORIDE	C ₃ H ₆ Cl ₂	78-87-5	C	C	C	C	C	C	C	C	A	?	C	?	A	A	A	?	?	A	?	?	?
PROPYLENE DIAMINE	C ₃ H ₈ (NH ₂) ₂	78-90-0	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PROPYLENE TRICHLORIDE	C ₃ H ₆ Cl ₃	96-19-5	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
PRUSSIC ACID 20%	HCN	74-90-8	A	B	A	A	C	A	B	B	A	B	B	?	?	?	?	?	?	?	?	?	?
PRUSSIC ACID 98% CONCENTRATED	HCN	74-90-8	B	B	A	A	C	?	B	B	A	B	B	?	?	?	?	?	?	?	?	?	?
PYRANOL 146776			C	C	C	C	C	?	?	C	B	A	?	C	?	?	?	?	?	A	?	?	?
PYRIDINE	C ₅ H ₅ N	110-86-1	C	C	C	C	C	C	C	C	C	C	C	A	?	A	A	A	A	A	A	?	B
QUICKSILVER NITRATE	Hg(NO ₃) ₂	10045-94-0	A	A	A	?	?	?	A	A	A	?	A	?	A	A	?	?	?	A	?	?	?
RAPESEED OIL		8002-13-9	C	B	C	C	A	?	C	B	A	?	C	A	?	A	?	?	?	A	?	?	?
RESIN (ROSIN)		2246493	C	B	C	C	?	?	?	C	A	?	?	?	?	?	A	A	?	B	?	A	?
ROTENONE IN WATER	C ₂₃ H ₂₂ O ₉ in H ₂ O	83-79-4	A	A	A	?	?	?	?	A	A	?	?	?	?	?	A	?	?	A	?	?	?
SEA WATER			A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	B	?	A	A	A	A
SEWAGE WATER (no hydrocarbons)			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	?
SHELL DD			C	B	C	A	C	C	?	C	C	?	?	?	?	?	?	?	?	A	?	?	?
SILICON CARBIDE (SLURRY)	SiC	409-21-2	A	A	A	?	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
SILICON FLUORIDE	SiF ₄	7783-61-1	A	C	A	?	A	A	C	B	A	?	C	?	?	?	?	?	?	A	?	?	?
SILICON TETRACHLORIDE	SiCl ₄	10026-04-7	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
SILICONE OIL		63148-58-3	A	A	A	A	A	A	C	A	A	B	C	?	A	A	A	A	A	A	A	A	A
SILVER CYANIDE (74 g/l)	AgCN	506-64-9	A	B	A	A	A	A	C	A	A	B	C	?	?	?	C	A	A	A	A	A	?
SILVER NITRATE	AgNO ₃	7761-88-8	A	A	A	A	A	A	A	A	A	B	A	A	C	C	C	C	A	A	A	?	A
SOAP OIL			C	B	C	A	A	?	?	B	?	?	?	?	?	A	?	?	?	A	A	?	?
SOAP SOLUTIONS		68952-95-4	A	B	A	A	A	A	A	B	A	A	A	A	?	A	B	C	?	A	A	A	A
SODA	Na ₂ CO ₃	497-19-8	A	A	A	A	A	A	A	A	A	A	A	?	A	A	?	?	?	A	A	?	?
SODA LYE 1.25%	NaOH	1310-73-2	B	B	A	A	?	A	A	A	A	A	A	?	A	A	A	A	A	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy	
SODA LYE 2.5%	NaOH	1310-73-2	B	B	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	A	A	A	A	A	
SODA LYE 50% (338 K)	NaOH	1310-73-2	C	C	B	B	?	B	B	?	?	?	?	?	?	?	A	A	?	A	A	A	A	?	
SODIUM ACETATE	NaC ₂ H ₃ O ₂	127-09-3	A	A	A	A	B	A	A	C	B	C	B	C	A	A	A	A	A	A	A	A	A	A	A
SODIUM ALUMINATE 3%	NaAlO ₂	1302-42-7	A	B	A	A	?	A	A	?	A	B	?	?	?	?	?	?	?	?	?	?	?	?	?
SODIUM ALUMINIUM SILICATE	Al ₁₂ Na ₁₂ Si ₁₂ O ₄₈ .27H ₂ O	1344-00-9	A	A	A	A	?	A	A	A	A	B	A	A	?	?	?	?	?	?	?	?	?	?	?
SODIUM BICARBONATE	NaHCO ₃	144-55-8	A	A	A	A	A	A	A	A	A	A	A	A	A	?	?	A	B	?	A	A	A	A	A
SODIUM BISULPHATE	NaHSO ₄	7681-38-1	A	A	A	A	B	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
SODIUM BROMIDE	NaBr	7647-15-6	A	C	A	A	?	A	A	?	A	A	B	?	?	C	C	B	B	A	A	A	A	A	?
SODIUM CARBONATE	Na ₂ CO ₃	497-19-8	A	A	A	A	A	A	A	A	A	A	B	A	A	A	?	C	A	A	A	A	A	A	B
SODIUM CHLORATE	NaClO ₃	7775-09-9	C	C	A	A	B	A	A	C	A	A	B	C	?	C	C	?	A	A	A	A	A	A	?
SODIUM CHLORIDE	NaCl	7647-14-5	A	A	A	A	A	A	A	A	A	A	B	A	A	C	C	A	?	A	A	A	A	A	?
SODIUM CHLORIDE 25%	NaCl	7647-14-5	A	A	A	A	A	A	A	A	A	A	B	A	A	?	?	A	?	?	?	?	?	?	?
SODIUM CYANIDE	NaCN	143-33-9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	?
SODIUM DICHROMATE	Na ₂ Cr ₂ O ₇ .2H ₂ O	7789-12-0	B	B	A	A	B	A	A	B	B	A	B	B	A	A	?	?	?	?	?	?	?	?	?
SODIUM FLUOALUMINATE	Na ₃ AlF ₆	13775-53-6	A	A	A	A	?	A	A	?	A	A	B	?	?	?	?	?	?	?	?	?	?	?	?
SODIUM FLUORIDE	NaF	7681-49-4	A	A	A	A	A	A	A	?	A	A	C	?	?	C	C	?	?	?	?	?	?	?	?
SODIUM HYDROSULPHIDE	NaHS	16721-80-5	A	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
SODIUM HYDROXIDE <5% (90 °C)	NaOH	1310-73-2	B	B	A	A	?	?	?	A	A	B	B	A	A	?	?	?	?	?	?	?	?	?	?
SODIUM HYDROXIDE 50% MAX.	NaOH	1310-73-2	B	B	A	A	?	A	A	B	B	C	C	B	A	?	A	C	B	A	A	A	A	A	A
SODIUM HYPOCHLORITE	NaClO	7681-52-9	C	C	A	A	B	A	A	B	C	A	C	B	A	?	?	?	?	?	?	?	?	?	?
SODIUM HYPOCHLORITE 20%	NaClO	7681-52-9	C	C	A	A	B	A	A	B	C	A	B	B	A	C	C	C	C	A	A	A	A	B	A
SODIUM IODIDE	NaI	7681-82-5	B	C	A	A	?	A	A	C	B	A	B	C	?	?	?	?	?	?	?	?	?	?	?
SODIUM METABISULPHATE <2%	Na ₂ S ₂ O ₇	7631-94-9	C	C	B	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
SODIUM METABISULPHATE >2%	Na ₂ S ₂ O ₇	7631-94-9	C	C	C	C	?	?	?	?	?	?	?	?	?	C	C	C	C	C	C	C	C	C	C
SODIUM METABISULPHITE <2%	Na ₂ S ₂ O ₅	7681-57-4	C	C	B	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
SODIUM METABISULPHITE >2%	Na ₂ S ₂ O ₅	7681-57-4	C	C	C	C	?	?	?	?	?	?	?	?	?	C	C	C	C	C	C	C	C	C	C

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
SODIUM METABORATE 18% (333 K)	NaBO ₂ ·2H ₂ O	16800-11-6	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM METAPHOSPHATE	NaPO ₃	50813-16-6	A	A	A	A	A	A	A	A	B	A	B	A	A	A	A	C	A	A	A	C	A	A
SODIUM NITRATE	NaNO ₃	7631-99-4	A	A	A	A	A	A	A	C	B	A	A	C	A	A	A	A	A	A	A	A	A	A
SODIUM NITRITE	NaNO ₂	7632-00-0	A	A	A	A	A	A	A	B	A	A	B	B	A	A	A	A	A	A	A	A	A	A
SODIUM OLEATE	Na(C ₁₈ H ₃₅ O ₂)	143-19-1	C	C	C	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM PERBORATE	NaBO ₃	7634-04-4	B	C	A	A	A	A	A	B	B	A	A	B	A	C	C	C	A	A	A	A	A	A
SODIUM PEROXIDE	Na ₂ O ₂	1313-60-6	C	C	A	A	C	A	A	B	B	A	A	B	A	A	A	A	A	A	A	A	A	B
SODIUM PHOSPHATE	Na ₃ PO ₄	7601-54-9	A	A	A	A	A	A	A	C	A	A	A	C	A	A	A	C	A	A	A	A	A	A
SODIUM PHOSPHATE (DI-BASIC)	Na ₂ HPO ₄ ·12H ₂ O	7558-79-4	A	A	A	A	A	A	A	C	B	A	B	C	A	A	A	A	A	A	A	A	A	A
SODIUM PHOSPHATE (MONO-BASIC)	NaH ₂ PO ₄	7558-80-7	A	A	A	A	A	A	A	C	B	A	B	C	A	A	A	A	A	A	A	A	A	A
SODIUM PHOSPHATE (TRI-BASIC)	Na ₃ PO ₄	7601-54-9	A	A	A	A	A	A	A	B	B	A	B	B	A	A	A	A	A	A	A	A	A	A
SODIUM SALT	Na	7440-23-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM SILICATE	Na ₂ SiO ₃ (Na ₂ O·SiO ₂)	1344-09-8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM SILICOALUMINATE		1344-00-9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM SULPHATE	Na ₂ SO ₄	7727-73-3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM SULPHIDE	Na ₂ S·9H ₂ O	1313-82-2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM SULPHITE	Na ₂ SO ₃	7757-83-7	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SODIUM THIOSULPHATE	Na ₂ S ₂ O ₃ ·5H ₂ O	10102-17-7	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SOYA OIL		8001-22-7	C	A	C	B	A	C	C	C	B	A	B	C	A	A	A	A	A	A	A	A	A	A
SPENT SULPHITE LIQUOR			?	A	A	A	A	A	A	C	B	A	C	C	A	A	A	A	A	A	A	A	A	A
SPIRIT (85% ETHYL ALCOHOL)	C ₂ H ₅ OH	64-17-5	A	A	A	A	B	A	A	B	A	A	C	B	A	A	A	A	A	A	A	A	A	A
STANNIC CHLORIDE	SnCl ₄	7646-78-8	A	B	B	A	B	A	A	B	A	A	B	B	A	A	A	C	B	A	A	A	A	A
STEARIC ACID	C ₁₈ H ₃₆ O ₂	57-11-4	C	B	C	C	A	A	A	B	B	A	A	B	A	A	A	B	B	A	A	A	A	A
STRONTIUM FERRITE	IS A SOLID	12023-91-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
STYRENE	C ₈ H ₈	100-42-5	C	C	C	C	B	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A
SUCCINIC ACID / AMBER ACID	HOOC(CH ₂) ₂ COOH	110-15-6	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
SULPHAMINIC ACID 2%	H ₃ NSO ₃	7773-06-0	A	B	A	A	A	?	?	B	A	?	?	?	?	?	?	?	?	?	?	?	?
SULPHUR (363 K)	S ₈	7704-34-9	C	C	C	?	C	C	C	C	C	C	C	A	?	?	A	A	?	A	A	?	?
SULPHUR CHLORIDE	S ₂ Cl ₂	10025-67-9	B	C	A	?	C	C	C	C	A	C	C	A	?	A	A	C	?	A	B	A	B
SULPHUR DIOXIDE 1.5%	SO ₂	7446-09-5	?	?	C	?	?	?	B	B	A	B	B	A	?	?	?	?	?	?	?	?	?
SULPHUR DIOXIDE 5% IN WATER	SO ₂ in H ₂ O	7446-09-5	A	B	A	?	A	A	B	B	A	B	B	A	?	?	?	?	?	?	?	?	?
SULPHUR DIOXIDE GAS	SO ₂	7446-09-6	C	C	A	?	A	A	A	C	A	A	A	A	?	?	A	A	?	?	?	?	A
SULPHUR SMOKE			A	B	A	?	?	?	?	?	?	?	?	?	?	?	?	?	C	A	?	?	?
SULPHUR TRIOXIDE	SO ₃	7446-11-9	C	C	B	A	C	A	B	C	A	B	B	?	?	?	?	?	?	A	?	?	?
SULPHURIC ACID (338 K)	H ₂ SO ₄	7664-93-9	?	?	A	C	A	A	B	A	A	A	B	A	?	?	?	?	?	A	?	?	?
SULPHURIC ACID 5% (358 K)	H ₂ SO ₄	7664-93-9	?	?	A	C	A	A	B	A	A	A	B	A	?	?	?	?	?	A	?	?	?
SULPHURIC ACID 10% (COLD)	H ₂ SO ₄	7664-93-9	A	A	A	A	A	A	B	A	A	A	B	A	?	A	C	C	?	A	A	A	A
SULPHURIC ACID 10% (348 K)	H ₂ SO ₄	7664-93-9	?	?	A	C	A	A	B	A	A	A	B	A	?	?	?	?	?	A	?	?	?
SULPHURIC ACID 20%	H ₂ SO ₄	7664-93-9	A	B	A	A	A	A	C	A	A	A	C	A	?	A	C	C	?	A	A	A	A
SULPHURIC ACID 30%	H ₂ SO ₄	7664-93-9	A	B	A	A	A	A	C	A	A	A	C	A	?	A	C	C	?	A	A	A	A
SULPHURIC ACID 50%	H ₂ SO ₄	7664-93-9	B	B	A	A	C	A	C	A	A	A	C	A	?	C	C	C	A	A	A	A	?
SULPHURIC ACID 75% (COLD)	H ₂ SO ₄	7664-93-9	C	C	A	A	C	A	C	B	A	B	C	A	?	C	C	C	A	A	A	A	?
SULPHURIC ACID 95% (COLD)	H ₂ SO ₄	7664-93-9	C	C	B	A	C	A	C	B	A	C	C	A	?	A	C	C	B	A	C	A	?
SULPHURIC ACID 97%	H ₂ SO ₄	7664-93-9	C	C	C	A	C	A	C	B	A	C	C	A	?	A	C	C	?	A	C	A	?
SULPHURIC ACID 98%	H ₂ SO ₄	7664-93-9	C	C	C	B	C	A	C	B	A	C	C	A	?	?	C	C	?	A	C	?	?
SULPHUROUS ACID 10%	H ₂ SO ₃	7782-99-2	A	B	A	A	A	A	C	B	A	A	C	A	?	?	A	C	?	?	?	?	?
SULPHUROUS ACID 75%	H ₂ SO ₃	7782-99-2	B	C	A	A	C	A	C	C	A	B	C	A	?	?	A	C	?	?	?	?	?
SULPHONIC ACID	H ₂ SO ₂		C	C	C	B	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
SUNFLOWER OIL		8001-21-6	C	A	C	C	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
TALC	Mg ₃ Si ₄ O ₁₁ ·H ₂ O	14807-96-6	A	A	A	A	?	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
TALLOW (BEEF)		61789-97-7	C	B	C	B	A	?	B	B	A	B	B	A	?	A	A	?	?	A	A	?	A
TANNIC ACID	C ₇₆ H ₅₂ O ₄₆	1401-55-4	A	A	A	A	?	A	A	B	A	A	B	?	?	?	A	A	A	A	A	A	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	Nitrile	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy
TAR		8007-45-2	C	C	C	C	?	C	C	B	C	A	C	B	?	A	A	A	?	?	A	A	A	?
TARTARIC ACID	C ₄ H ₆ O ₆	87-69-4	A	B	A	A	?	A	A	A	A	A	A	A	A	?	A	?	A	A	A	A	A	A
TETRABROMOETHANE	C ₂ H ₂ Br ₄	79-27-6	C	C	C	C	B	C	C	C	C	A	C	C	?	?	?	C	?	?	A	C	?	?
TETRABUTYL TITANATE	(C ₄ H ₉) ₄ TiO ₄		C	C	C	C	?	?	?	?	B	A	?	?	?	?	?	?	?	?	A	?	?	?
TETRACHLOROCARBON	CCl ₄	56-23-5	C	C	C	C	C	C	C	C	C	C	C	C	?	?	?	?	?	C	A	?	?	?
TETRACHLORODIFLUOROETHANE	C ₂ F ₂ Cl ₄	76-12-0	C	C	C	C	C	C	C	C	B	A	C	C	?	?	?	?	?	?	A	?	?	?
TETRACHLOROETHANE	C ₂ H ₂ Cl ₄	79-34-5	C	C	C	C	A	C	C	C	C	A	C	C	?	?	B	C	A	?	A	C	A	A
TETRACHLOROMETHANE	C ₁₀ H ₄ Cl ₄	1335-88-2	C	C	C	C	C	C	C	?	?	B	?	?	?	?	?	?	?	?	A	?	?	?
TETRAFLUOROCARBON	CF ₄	75-73-0	C	C	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
TETRAHYDROFURAN (THF)	C ₄ H ₈ O	109-99-9	C	C	C	C	C	C	C	C	C	C	C	C	?	?	A	?	?	C	A	B	A	A
THORIUM SLURRY			A	B	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
TITANIUM DIOXIDE (30%)	TiO ₂	13463-67-7	A	B	A	A	?	A	A	?	?	A	A	?	A	?	?	?	?	?	?	?	?	?
TITANIUM SULPHATE (1%)	Ti(SO ₄) ₂	18130-44-4	A	B	A	A	?	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?
TOLUENE	C ₇ H ₈	108-88-3	C	C	C	C	A/B	C	C	C	C	A	C	C	A	A	A	A	A	C	A	C	A	A
TRIBUTOXYPHOSPHATE	(C ₄ H ₉ OH) ₃ PO ₄		C	C	C	C	?	?	?	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?
TRIBUTYLPHOSPHATE	(C ₄ H ₉) ₃ PO ₄		C	C	C	C	?	?	?	C	C	C	C	C	?	?	?	?	?	?	?	?	?	?
TRICHLOROBENZENE	C ₆ H ₃ Cl ₃	108-70-3 (1,3,5-)	C	C	C	C	C	C	C	C	C	B	?	C	?	?	A	C	A	?	A	?	?	?
TRICHLOROETHYLENE	C ₂ HCl ₃	79-01-6	C	C	C	C	C	C	C	C	C	C	C	C	B	?	A	?	?	C	A	?	?	?
TRICHLOROFLUOROMETHANE	CFCl ₃	75-69-4	C	C	C	C	C	C	C	?	C	?	C	?	?	?	A	?	?	?	A	?	?	?
TRICHLOROTRIFLUOROETHANE	C ₂ Cl ₃ F ₃	76-13-1	C	C	C	C	C	C	C	?	?	?	?	?	?	?	A	?	?	?	A	?	?	?
TRICRESYL PHOSPHATE	(C ₇ H ₇) ₃ PO ₄	1330-78-5	C	C	C	C	?	?	?	C	B	A	C	C	A	A	?	?	?	?	A	?	?	?
TRITHANOLAMINE	(C ₂ H ₅ OH) ₃ N	102-71-6	C	C	C	C	C	C	C	C	C	C	?	C	A	?	A	A	A	C	?	C	C	?
TRIPHENYL PHOSPHATE	(C ₆ H ₅) ₃ PO ₄	115-86-6	A	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	A	?	?	?
TRISODIUM PHOSPHATE (TSP)	Na ₃ PO ₄	7601-54-9	A	A	A	A	A	A	A	A	A	A	A	A	?	?	A	?	?	?	A	A	?	?
TUNG OIL (China wood oil)		8001-20-5	C	C	C	C	?	C	C	C	A	A	?	C	A	A	A	A	?	?	A	A	?	?
TURPENTINE (mainly pinene)	C ₁₀ H ₁₆	8006-64-2	C	C	C	C	C	C	C	C	C	A	B	C	A	A	A	A	?	?	A	B	?	A

A: no effect
Should be acceptable for use in a pump

B: some effect
Use if no alternative is available
or if short service is acceptable

C: severe effect
Do not use

?: no data available

Duty fluid	Molecular formula	Chemical Abstract Service number	Rubber	EPDM	Hypalon	Petroproof	Bioprene	Marprene	Pumpsil	Neoprene	Fluorel	Tygon	STA-PURE	CHEM-SURE	Mild steel	SS316	Aluminium	Cast iron	PVC	PTFE	Polypropylene	PVDF	Epoxy		
URANIUM	U	7440-61-1	A	A	A	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?		
UREA	CH ₄ N ₂ O	57-13-6	A	B	A	?	A	A	B	B	A	A	B	A	?	A	A	?	A	A	A	A	?		
URINE			A	B	A	?	?	?	?	C	A	?	?	?	?	A	A	?	?	A	A	A	A		
VEGETABLE OIL			C	B	C	A	A/B/A/B	A	A	B	A	C	A	?	A	A	A	A	A	A	A	A	A	?	
VINEGAR	C ₃ H ₅ COOH		B	C	A	A	A	A	A	B	A	A	A	A	?	A	B	C	A	A	A	A	A	A	
VINEGAR ANHYDRIDE 50%	C ₄ H ₆ O ₃	108-24-7	C	C	B	C	?	?	?	?	?	?	?	A	?	A	A	?	C	A	A	A	?	?	
VINYLCHLORIDE	C ₂ H ₃ Cl	75-01-4	C	C	C	C	C	C	?	C	A	C	?	B	?	A	C	A	?	A	C	A	?	?	
WATER	H ₂ O	7732-18-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	?	A
WATER, CONDENSATION	H ₂ O	7732-18-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	?	A	A	A	A	A	?	?
WATER, DISTILLED	H ₂ O	7732-18-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A
WATER, DRINK	H ₂ O	7732-18-5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	?	A
WATER, MIN. WITH OXYD.SALTS			B	C	A	A	B	A	A	?	?	?	?	A	?	?	?	?	?	?	?	?	?	?	?
WATER, MIN. WITHOUT OXYD.SALTS			A	A	A	A	A	A	?	?	?	?	?	A	?	?	?	?	?	?	?	?	?	?	?
WHISKY AND WINE			A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	A
WHITE OIL 10%			C	A	C	A	?	?	C	B	A	?	C	?	?	A	?	?	?	A	?	?	?	?	?
WHITE SPIRIT		64742-88-7	C	B	C	C	A	C	C	B	A	B	C	?	?	?	?	?	?	A	?	?	?	?	?
WOOD OIL			C	C	C	C	?	?	C	B	A	A	C	?	?	?	?	?	?	A	?	?	?	?	?
WOOLFAT			C	C	C	?	?	?	?	A	?	B	?	?	?	?	?	?	?	?	?	?	?	?	?
XYLENE	C ₈ H ₁₀	106-42-3 (para-)	C	C	C	C	C	C	C	C	A	C	C	A	A	A	A	A	C	A	C	A	C	A	?
ZEOLITE		1318-02-1	B	B	A	A	?	?	?	A	A	B	?	?	?	A	?	?	?	A	?	?	?	?	?
ZINC AMMONIUM CHLORIDE	ZnNH ₄ Cl ₃	14639-97-5	A	C	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	?
ZINC BORATE	ZnBO ₃	1332-07-6	A	A	A	A	?	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	?
ZINC CHLORIDE	ZnCl ₂	7646-85-7	A	A	A	A	A	A	A	A	A	A	A	A	?	C	?	A	A	A	A	A	A	?	A
ZINC HYDROXIDE	Zn(OH) ₂	20427-58-1	A	B	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	?
ZINC OXIDE (300 K)	ZnO	1314-13-2	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	?	?	?	?	?	?	?	?
ZINC SULPHATE	ZnSO ₄	7446-20-0	A	A	A	A	A	A	A	A	A	A	A	A	?	?	?	C	A	A	A	A	A	?	A

United Kingdom
Telephone +44 (0) 1326 370370
Fax: +44 (0) 1326 376009
Email info@watson-marlow.co.uk

Belgium
Telephone +32 (0) 9 225 94 57
Fax: +32 (0) 9 233 06 49
Email info@watson-marlow.be

Brazil
Telephone +55 (11) 2155 4000
Fax: +55 (11) 2155 4001
Email info4brazil@watson-marlow.com

China
Telephone +86 21 6485 4898
Fax: +86 21 6485 7366
Email mingshao@cn.spiraxsarco.com

Denmark
Telephone +45 43 94 00 65
Fax: +45 43 94 00 85
Email info@watson-marlow.dk

France
Telephone +33 (0) 1 34 87 12 12
Fax: +33 (0) 1 34 87 12 13
Email info@watson-marlow.fr

Germany
Telephone +49 (0) 2183 42040
Fax: +49 (0) 2183 82592
Email info@watson-marlow.de

Italy
Telephone +39 030 68 71 184
Fax: +39 030 68 71 352
Email info@watson-marlow.it

Korea
Telephone +82 (0) 32 820 3973
Fax: +82 (0) 32 811 0321
Email changwoojang@kr.spiraxsarco.com

Malaysia
Telephone +60 (3) 5635 3323
Fax: +60 (3) 5635 7717
Email sales@my.spiraxsarco.com

Netherlands
Telephone +31 (0) 10 462 1688
Fax: +31 (0) 10 462 3486
Email info@watson-marlow.nl

South Africa
Telephone +27 11 796 2960
Fax: +27 11 794 1250
Email info@wmbpumps.co.za

Sweden
Telephone +46 8 556 556 00
Fax: +46 8 556 556 19
Email info@watson-marlow.se

United States of America
Telephone 800 282 8823
Fax: +1 978 658 0041
Email support@wmbpumps.com

www.watson-marlow.com
Members of the Spirax-Sarco
Engineering Group

The information contained in this document is believed to be correct, but Watson-Marlow Bredel accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING
These products are not designed for use in, and should not be used for, patient-connected applications.

Watson-Marlow, Pumpsil, LoadSure, LaserTraceability, Bioprene and Marprene are registered trademarks of Watson-Marlow Limited. STA-PURE and CHEM-SURE are trademarks of WL Gore & Associates Inc. Fluorel is a trademark of 3M.



Put a peristaltic in your process **Improve your performance**

WARNING
These products are not designed for use in,
and should not be used for, patient-connected applications.