

Seal Material Selection Table (For reference)

For seal parts in the Cupla (the important parts that prevent leaking to the outside), it is important to select the most appropriate seal material to suit the property and temperature of the fluid. It is so important that wrong selection may not only completely malfunction the Cupla but also cause an unexpected accident.

*The rubber material must be selected and specified by the user.

	Fluids	Seal Material		
		Fluoro rubber	Ethylene-propylene rubber	Perfluoroelastomer
A	Acetaldehyde	—	○	◎
	Acetic anhydride	—	○	◎
	Acetone	—	◎	◎
	Acetonitrile	—	—	○
	Acetophenone	—	◎	◎
	Acetylacetone	—	◎	◎
	Acetyl chloride	◎	—	—
	Air (50°C)	◎	◎	◎
	Aluminium bromide (65°C)	◎	◎	—
	Aluminium chloride (65°C)	◎	◎	—
	Aluminium nitrate (65°C)	—	◎	—
	Aluminium sulfate (65°C)	◎	◎	—
	Amine	—	○	○
	Ammonia (anhydrous)	—	◎	—
	Ammonia (cool)	—	◎	—
	Ammonia (65°C)	—	○	—
	Ammonia gas	—	◎	—
	Ammonium carbonate	—	◎	—
	Ammonium chloride	—	◎	—
	Ammonium hydroxide	○	◎	—
	Ammonium nitrate (65°C)	—	◎	—
	Ammonium phosphate (65°C)	—	◎	—
	Ammonium sulfate (65°C)	—	◎	—
	Ammonium sulfite	—	◎	—
	Amyl acetate	—	△	○
	Amyl alcohol	○	◎	○
	Aniline	△	○	◎
	Arsenic trichloride	—	—	—
B	Barium chloride	◎	◎	—
	Barium hydroxide (65°C)	◎	◎	—
	Barium nitrate (65°C)	◎	—	—
	Barium sulfate (65°C)	—	—	—
	Barium sulfide	◎	◎	—
	Benzaldehyde	—	◎	—
	Benzene	◎	—	—
	Benzyl alcohol (65°C)	◎	○	—
	Benzyl chloride	◎	—	—
	Bromine	◎	—	◎

	Fluids	Seal Material		
		Fluoro rubber	Ethylene-propylene rubber	Perfluoroelastomer
B	Bromine water	◎	—	—
	Butadiene	○	△	—
	Butane	◎	—	—
	Butane (liquid)	◎	—	—
	Butane (2,2-, 3-dimethyl)	◎	—	—
	Butanol (Butyl alcohol)	◎	○	—
	Butyl acetate	—	○	○
	Butyl stearate	◎	—	—
	Butylene	◎	—	—
	Butyraldehyde	—	○	○
C	Calcium acetate	—	◎	—
	Calcium acetate (65°C)	—	◎	—
	Calcium carbide	—	—	—
	Calcium carbonate	—	—	—
	Calcium hydroxide (65°C)	◎	◎	—
	Calcium nitrate (65°C)	◎	◎	—
	Calcium perchlorate	—	—	—
	Calcium sulfate	—	—	—
	Calcium sulfate (65°C)	—	—	—
	Calcium sulfite	◎	—	—
	Carbitol	○	○	—
	Carbon dioxide gas (65°C)	○	○	—
	Carbon disulfide	◎	—	—
	Carbon monoxide (65°C)	◎	◎	—
	Carbon tetrachloride	◎	—	◎
	Chlorine gas	◎	—	—
	Chlorine (liquid)	—	—	—
	Chlorine water	◎	○	—
	Chloroacetone	—	◎	—
	Chlorobenzene	◎	—	—
	Chloroform	◎	—	◎
	Chlorophenol	◎	—	—
	Copper chloride (65°C)	◎	◎	—
	Copper cyanide	◎	◎	—
	Copper sulfate	◎	◎	—
	Cresol (50°C)	◎	—	—
D	Diacetone alcohol	—	◎	◎
	Dibenzyl ether	—	○	—

	Fluids	Seal Material		
		Fluoro rubber	Ethylene-propylene rubber	Perfluoroelastomer
D	Dichlorophenol	◎	—	—
	Diethanolamine	—	○	—
	Diethylene glycol	◎	◎	—
E	Ethanol	◎	◎	◎
	Ethyl acetate	—	○	—
	Ethyl alcohol	◎	◎	◎
	Ethyl benzene	◎	—	◎
	Ethyl cellulose	—	○	—
	Ethyl chloride	◎	◎	◎
	Ethylene glycol	◎	◎	◎
	Ethylene trichloride	◎	—	—
F	Fluorine (dry)	—	—	○
	Formaldehyde	—	—	—
	Furfural	—	○	◎
G	Glycerine (65°C)	◎	◎	—
	Glycol	◎	◎	—
H	Helium	◎	◎	◎
	Heptane	—	—	—
	Hexane	—	—	◎
	Hydrogen	◎	◎	—
	Hydrogen bromide	—	—	○
	Hydrogen peroxide (30%)	○	○	—
I	Iron chloride	◎	◎	—
	Iron nitrate (65°C)	◎	◎	—
	Iron sulfate (10%)	—	—	—
	Isooctane	◎	—	◎
	Isopropyl acetate	—	○	—
	Isopropyl alcohol	◎	◎	—
	Isopropyl ether	—	—	—
K	Kerosene	◎	—	—
L	Liquid glass (Sodium silicate)	—	—	—
M	Magnesium chloride (65°C)	◎	◎	—
	Magnesium hydroxide (65°C)	◎	◎	—
	Magnesium nitrate	—	—	—
	Magnesium sulfate (65°C)	◎	◎	—
	Maleic anhydride	◎	—	—
	Methanol	—	◎	—
	Methyl bromide	◎	—	—

How to read the selection tables

- ⊙ : Practically no harm, and can be used (Excellent)
- : Some harm may be inevitable but can be used under restrictions (Good)
- △ : Should be avoided if at all possible (Not recommended)
- : Should not be used (Unsuitable)

Note:

When selecting the seal material, please consider the following suggestions carefully:

1. If there is no comment in the column of the fluid name, the condition of the fluid is under saturation at room temperature.
2. Please check with us for applications at a high fluid temperature or with different fluid concentrations.
3. For applications related to foods, please order separately specifying the detailed applications.

	Fluids	Seal Material		
		Fluoro rubber	Ethylene-propylene rubber	Perfluoroelastomer
M	Methyl butyl ketone	—	⊙	
	Methyl chloride	⊙	△	
	Methyl ethyl ketone	—	⊙	⊙
	Methyl propyl ketone	—	○	
	Methyl salicylate	—	○	
	Methylene bromide	○	—	○
	Methylene chloride	⊙	△	⊙
	Monobromobenzene	⊙	—	
	Monochlorobenzene	—	—	
	Monoethanolamine	—	○	
N	Naphthalene	⊙	—	
	Nickel acetate	—	⊙	
	Nickel acetate (65°C)	—	⊙	
	Nickel ammonium sulfate	—	—	
	Nickel chloride	⊙	⊙	
	Nickel nitrate	—	—	
	Nickel sulfate	—	—	
	Nitrobenzene	○	—	⊙
	Nitrogen (gas)	⊙	⊙	⊙
	Normal heptane	⊙	—	
O	Normal pentane	⊙	—	
	Octyl alcohol	⊙	⊙	
P	Oleic acid (65°C)	○	—	
	Ortho-dichlorobenzene	⊙	—	
	Oxygen (gas)	⊙	⊙	⊙
	Ozone	⊙	⊙	
	Pentane (2-,3-,4-methyl)	—	—	
	Phenol	⊙	—	
	Phosphorus	—	—	
	Phosphorous oxychloride (dry)	⊙	⊙	
	Phosphorous oxychloride (wet)	⊙	⊙	
	Phthalic anhydride	—	—	
	Potassium acetate (65°C)	—	⊙	
	Potassium bichromate	⊙	⊙	
	Potassium carbonate	—	—	
	Potassium cyanide	⊙	⊙	
	Potassium hydroxide (65°C)	—	⊙	
	Potassium nitrate (65°C)	⊙	⊙	

	Fluids	Seal Material		
		Fluoro rubber	Ethylene-propylene rubber	Perfluoroelastomer
P	Potassium nitrite	—	⊙	
	Potassium phosphate	—	—	
	Potassium silicate	⊙	⊙	
	Potassium sulfate	⊙	⊙	
	Potassium thiosulfate	—	—	
	Propyl acetate	—	○	
	Propyl alcohol (65°C)	⊙	⊙	
	Propylene	⊙	—	
	Pyridine	—	○	⊙
	S	Sodium acetate	—	⊙
Sodium aluminate		—	—	
Sodium carbonate		⊙	⊙	
Sodium chloride		⊙	⊙	
Sodium chloride (salt water)		⊙	⊙	
Sodium cyanide		—	⊙	
Sodium hydroxide (50%)		△	⊙	⊙
Sodium hydroxide (50°C)		—	⊙	
Sodium hypochlorite		⊙	○	⊙
Sodium iodide		—	—	
Sodium metaphosphate		⊙	⊙	
Sodium nitrate		⊙	⊙	
Sodium nitrite		—	⊙	
Sodium peroxide	⊙	⊙		
Sodium phosphate	—	—		
Sodium plumbate	—	—		
Sodium silicate	⊙	⊙		
Sodium sulfate	⊙	⊙		
Sodium sulfide	⊙	⊙		
Sodium sulfite	⊙	⊙		
Sodium thiosulfate	—	—		
Sulfur	⊙	⊙		
Sulfur chloride (dry)	⊙	—		
Sulfur dioxide	⊙	⊙		
Sulfur tetroxide	⊙	—	⊙	
T	Tetraethyl lead	⊙	—	
	Tetralin	⊙	—	
	Titanium tetrachloride	⊙	—	
	Toluene (Toluol)	△	—	⊙

	Fluids	Seal Material		
		Fluoro rubber	Ethylene-propylene rubber	Perfluoroelastomer
T	Triethanolamine	—	○	
V	Vinyl acetate	—	⊙	
	Vinyl chloride	⊙	△	
	Vinyl chloride resin	⊙	—	
W	Water (65°C)	⊙	⊙	⊙
X	Xylene	⊙	—	⊙
Z	Zinc chloride (65°C)	⊙	⊙	
	Zinc sulfate (65°C)	⊙	⊙	