



# Propylene Glycol USP

for Pharmaceutical Applications





# PG USP

## Product characteristics

- Produced by propylene oxide with purified water and no solvents, or additives
- A viscous, clear liquid with a weak characteristic odor
- Relatively non-toxic, hygroscopic liquid and antimicrobial properties
- Soluble in water and various organic compounds
- Safe for pharmaceutical use under FDA 21 CFR 184.1666
- Produce under the KFDA approval

SK picglobal PG USP is a high-purity (over 99.8%) product and can be applied to additives

- Pharmaceutical excipients (No active pharmaceutical ingredient)



### Quality

SK picglobal PG USP meets global standards and regulations as below

- United States Pharmacopeia (USP)
- Chinese Pharmacopeia (CHP)
- European Pharmacopeia (EP)
- Kosher & Halal-certified
- Many other countries Pharmacopeia

SK picglobal is continuously improving our quality management system to provide our customers with the best quality, stability, and reliability

### Applications

PG USP is harmless to the human body and is used directly as a pharmaceutical excipient like solvent, plasticizer, emulsion stabilizer, dispersant, viscosity modifier, enzyme stabilizer, emolient, humectant, coupling agent.

- Drugs and medicines
- Vitamins and hormones
- Solvent and compatibilizer
- Corticosteroids, Eye drops
- Dental
- Vitamin A, D

### Safety

FDA- and ATSDR- (Agency for Toxic Substance & Disease Registry) approved PG is

- Generally Recognized As Safe (GRAS, FDA 21 CFR 184.1666)
- Not dangerous and decomposes fully within 48 hours in the body

For over 50 years and in previous studies about PG,

- There have been no negative effects on human health, including young children
- Results of exposure testing have confirmed that PG is not a respiratory or eye irritant



### Safety, Health and Environment

PG USP is safe, but when handling,

- Do not touch the eyes directly
- Wear protective equipment
- Work in a well-ventilated place
- If it comes into contact with hands or any part of the body, wipe with running water



If spilled,

- Wash with soap
- Wipe off with a hygroscopic tissue or cloth
- Don't worry, it will be degraded by bacteria



### Transport and storage

For safe transportation and stable quality,

- Strategically located terminal facilities
- Storage with nitrogen purged : no contact with air or moisture

PG USP is packaged and transported as

- ISO & Flexitanks, IBC bags, coated steel, and plastic drums (HDPE)

PG USP storage requirements

- In a single-stage load at 40 degrees or less
- No direct sunlight or UV
- After opening, keep the lid closed
- When storing in a tank, nitrogen padding is recommended

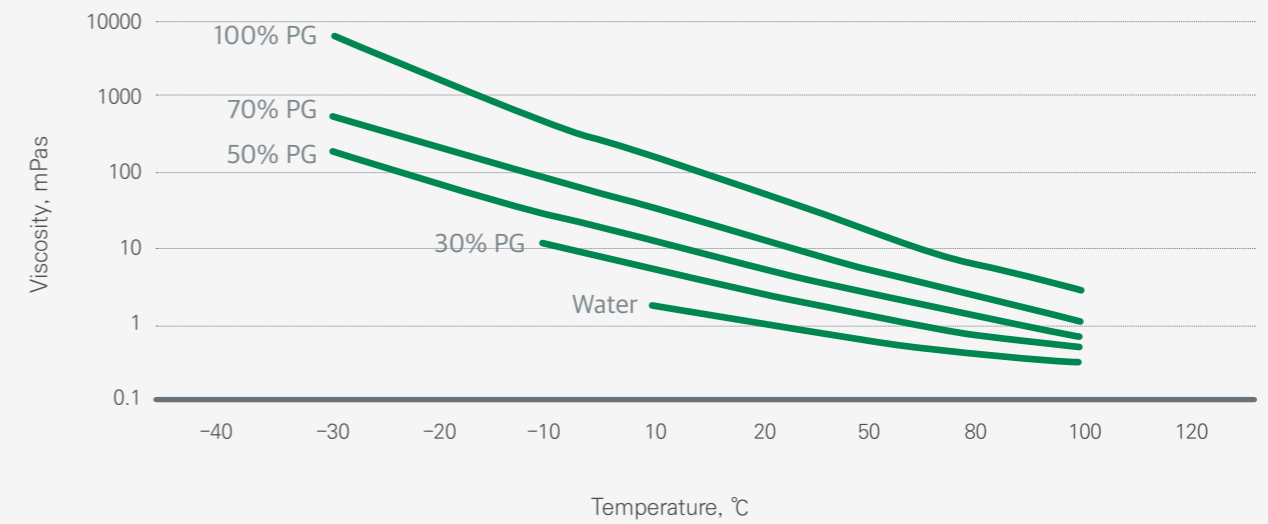
### Technical data

Item	Test method	Unit	Data
Chemical name			1,2-Propanediol
Formula			C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>
Molecular weight		g/mol	76.10
CAS No.			57-55-6
EC(EINECS) No.			200-338-0
Surface tension	25°C	ISO 304	mN/m 36
Refractive index	20°C	ASTM D1218	1.4310-1.4330
Viscosity	25°C 60°C	ASTM D2849	mPas (cPs) 48.6 8.4
Specific gravity	20/20°C 25/4°C 60/4°C	ASTM D4052	1.038 1.033 1.007
Vapor pressure	20°C 25°C	ASTM D5482	kPa 0.011 0.017
Specific heat	25°C	ASTM E202	J/g·K 2.51
Heat of formation		ASTM D240	kJ/mol -422
Heat of vaporization	25°C	ASTM E1719	kJ/mol 67.0
Flash point		PMCC	°C 104
Autoignition temp.		ASTM E659	°C 371
Distillation range	1 atm	ASTM D1078	°C 186-189
Freezing point		ASTM D2386	°C -59
Pour point		ASTM D97	°C -57
Thermal conductivity	25°C	ASTM D2717	W/m·K 0.2061
Electrical conductivity	25°C	ASTM D4308	micro S/m 10

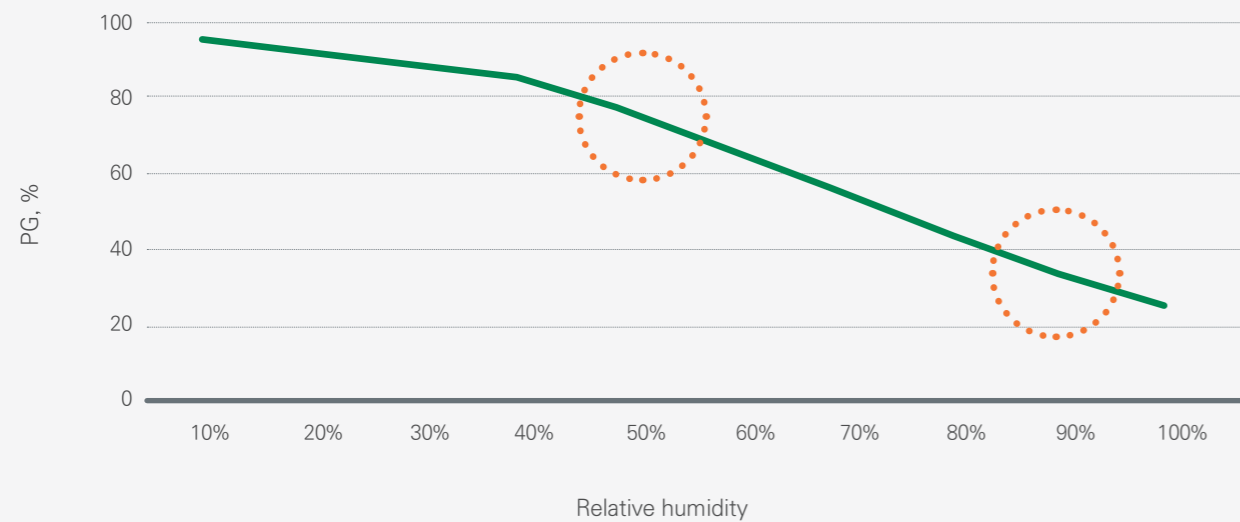
### Solubility

Solubility	Material
Completely soluble	Water, Ethyl alcohol, Ethyl ether, Methyl alcohol Methyl Isobutyl Carbinol, Methyl Isobutyl Ketone
Partially soluble (20~100%)	Carbon tetrachloride, Dichloroethyl ether, Monochlorobenzene
Partially soluble (10~20%)	Benzene, ortho-Dichlorobenzene, Perchloroethylene, Toluene
Insoluble (<10%)	Dibutyl phthalate

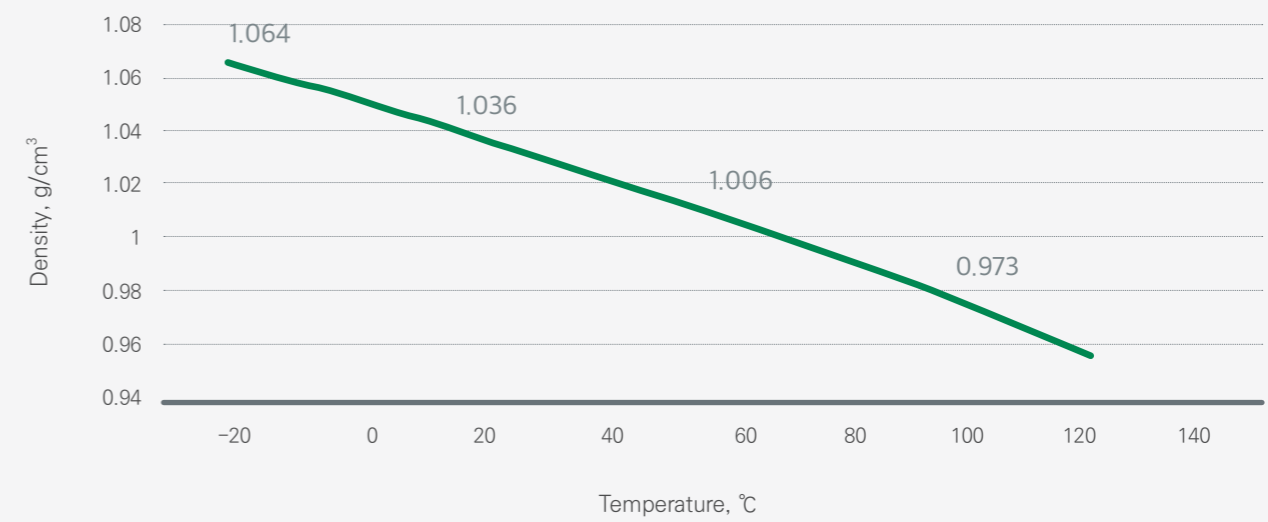
### Viscosity of aqueous solution



### Moisture retention concentration



### Density by temperature



※ An aqueous solution containing 80% or more PG does not evaporate moisture even at a relative humidity of 50% or less. In an environment with a relative humidity of 90%, moisture retention is maintained even if only 40% of the PG is included



Additional information is available from your SK picglobal representative, our website, or by calling

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