1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier:

Substance name: Propane-1,2-diol
Trade Name : Propylene Glycol USP (PG USP)
Molecular formula : C3H8O2
CAS No: 57-55-6
EC (EINECS) No: 200-338-0

1.2 Relevant identified uses of the substance or mixture and uses advised against:

1.2.1 Recommended Use

As a humectant, safe solvent and emulsifier in products below
- excipient (non-active ingredient) of pharmaceutical
- additive of food, pet food (except in cat food)
- cosmetic and personal care, flavor and fragrance

1.2.2 Prohibited Uses

in cat food and in applications other than the above recommended use

1.3 Details of the supplier of the safety data sheet:

Manufacturer/supplier: SK picglobal Co., ltd.
Street address/P.O.Box: 255, Yongjam-ro, Nam-gu, Ulsan
Country ID/Postcode/Place: KOREA/ 44782
Telephone number: TEL. + 82-52-278-5511 ~ 13/ + 82-52-278-5642
e-mail contact : www.skpicglobal.com
National contact: +82-2-3787-1234
Information for REACH Registration

Contact name	email address	phone number	registration no
KTR Europe GmbH	reach@ktreurope.de	+49 (0)61968871710	01-2119456809-23-0014

1.4 Emergency telephone number: p

Opening hours: +82-52-278-5642

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance

2.1.1 GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS/HazCom 2012) :

Not a dangerous substance and no GHS classifications indicated

2.1.2 Classification in accordance with Regulation (EC) No 1272/2008 :

Not a dangerous substance and is not classified.

2.2 Label elements

2.2.1 GHS Signal word, Hazard & preautionary statements according 29 CFR 1910.1200(OSHA HCS) :

No signal word, statements

2.2.2 Labeling in accordance with Regulation (EC) No 1272/2008

No signal word, No label

2.3 Other hazards : no data available

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical name	CAS no./ EC no.	Identification name	Weight % content (or range)	Component Type
Propylene Glycol	57-55-6/ 200-338-0	propane-1,2-diol	99.8 - 100 %	Substance

4 FIRST AID MEASURES

4.1 General

May cause irritation of the eyes, skin and mucous membranes. Always observe self-protection methods Move out of dangerous area. Remove contaminated shoes and clothing. Show this material safety data sheet to the doctor in attendance.

4.2 Eye

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center.
Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician.
IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

4.3 Skin

Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes.

If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

4.4 Ingestion

DO NOT INDUCE VOMITING. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician.
If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital.

4.5 Inhalation

If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed.

Obtain emergency medical attention if breathing difficulty persists.

4.6 Note To Physician

Symptoms of exposure to this compound may include central nervous system depression. Other symptoms may include convulsions.
It may cause irritation of the skin and eyes. It may cause primary skin irritation in some people, possibly due to dehydration. Prolonged contact may result in defatting of the skin. It can cause skin sensitization. Ingestion of large amounts can cause gastro-intestinal upset and diarrhea. A single drop in human eyes has caused

immediate stinging, blepharospasm, and lacrimation followed by mild transient conjunctival hyperemia. Severe inhalation of the mist may cause mild irritation of the upper respiratory tract. In children, exposure can cause stupor, tachypnea, tachycardia, diaphoresis and seizures. It can also cause hypoglycemia in children. Very high doses in experimental animals have produced central nervous system depression, hemolysis, and minimal kidney changes.

5 FIREFIGHTING MEASURES

5.1 Extinguishing media

- Suitable extinguishing media :
  - SMALL FIRE: Use dry chemicals, CO2, water spray or alcohol-resistant foam.
  - BIG FIRE: Use fine water spray, water fog or alcohol-resistant foam.
- Unsuitable extinguishing media : Do not use direct water stream.

5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire fighting

- Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below normal Flash point. Fight fire from a safe distance/protected location. Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of burns/injuries. Use water spray/fog for cooling. Avoid frothing/ steam explosion. Burning liquid may float on water. Although water soluble, may not be practical to extinguish fire by water dilution. Notify authorities immediately if liquid enters sewer/public waters.

5.3 Advice for for firefighters

- Move the case from near the fire if work can be done without risk. Spray high-pressure water on the leaked substance to prevent scattering. Construct a bank for further processing. Use a fire extinguisher that has been used and found effective for nearby fire. Avoid inhalation of substances or their fumes. Stand facing the wind and avoid low areas.
- Protective Equipment and Precautions For Firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA).
  Structural firefighters protective clothing will only provide limited protection.

- Firefighting procedure

- Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: Not required.

For emergency responders: No data available.

6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Extinguish ignition sources; stop release; prevent flow to sewers or public waters. Notify fire and environmental authorities. Impound/recover large land spill; soak up small spill with inert solids. Soak up small spills with inert solids. Use suitable disposal containers. On water, material is soluble and may float or sink. Contain/collect rapidly to minimize dispersion. Disperse residue to reduce aquatic harm. Report per regulatory requirements.

6.4 Reference to other sections: No dangerous substances are released. See Section 7 for information on safe handling.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling:

Advice on safe handling : Handle empty containers with care - residue can burn if heated. Empty containers should be thoroughly rinsed with copious amounts of clean water. The rinse water can be used for makeup water for any necessary dilution of the concentrated product before use, or it can be properly discarded.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed when not in use. Protect from moisture. Store away from heat. Material can attack some forms of plastics. Do not store together with oxidizing and self-igniting products.

Advice on common storage : Carbon/Mild steel with epoxy-phenolic internal coating, or stainless steel

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s): No data available.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Workplace exposure limits listed in EH40/2005 Workplace Exposure Limits:

Consult local authorities for acceptable exposure limits

Substance	CAS no	Workplace exposure limit				Comments
		Long-term exposure limit (8-hour TWA reference period)		Short-term exposure limit (15-minute reference period)		
		ppm	mg/m^3	ppm	mg/m^3	
Propane-1,2-diol	57-55-6	150	474	-	-	Vapor & aerosol
total vapor and particulates		-	*10	-	-	Only vapor

*US weel : USA. Workplace Environmental Exposure Levels

DNELs: Derived No (Minimal) Effect Level

Exposure pattern	Workers	General Population
Long-term – inhalation, systemic	168 mg/m3	50 mg/m3
Long-term – inhalation, local	10 mg/m3	10 mg/m3
Long-term – skin, systemic	n.a	n.a
Long-term – skin, local	n.a	n.a
Acute – inhalation, systemic	n.a	n.a
Acute – inhalation, local	n.a	n.a
Acute – skin, systemic	n.a	n.a
Acute – skin, local	n.a	n.a

PNECs: Predicted No Effect Concentration

Items	PNEC Value,	Assessment factor
freshwater	260 mg/l	50
sea-water	26 mg/l	500
STP microbes	20,000 mg/l	1
fresh water sediment	572 mg/kg dw	
sea sediment	57.2 mg/kg dw	
soil	50 mg/kg dw	
water, intermittent	183 mg/l	100
oral food	1,133 mg/kg	30

8.2 Exposure controls: The usual precautionary measures are to be adhered to when handling chemicals.

8.2.1 Appropriate engineering controls: Use adequate ventilation.

8.2.2 Individual protection measures, such as personal protective equipment:

8.2.2.1 Eye/face protection: Goggles recommended during refilling.

8.2.2.2 Skin protection:

Hand protection: Wear appropriate protective gloves.

The glove material has to be impermeable and resistant to the product. Due to missing tests no recommendation to the glove material can be given for the product. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Other: Wear appropriate protective clothing.

8.2.2.3 Respiratory protection: If ventilation is insufficient, suitable respiratory protection must be provided.

8.2.2.4 Thermal hazards: No data available.

8.2.3 Environmental exposure controls: Do not allow to enter sewers/ surface or ground water.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	clear colourless liquid
Odour:	Weak characteristic
Odour threshold:	-
pH:	-
Melting point/freezing point:	< -50 °C
Initial boiling point/dry boiling range:	186 / 188°C
Flash point: PMCC	104 °C at 100.01 kPa
Evaporation rate:	-
Flammability (solid, gas):	-
Upper/lower flammability or explosive limits:	-
Vapour pressure:	20 Pa at 25 °C
Vapour density:	-
Relative density:	1.038 at 20/20 °C, 1.036 at 25/25 °C
Solubility(ies):	Water solubility: 100 vol% The substance is fully miscible with water in all proportions at 20 ˚C and pH = 7.1-7.8.
Partition coefficient: n-octanol/water:	Pow: 0.0851 at 20.5°C log Pow: -1.07 at 20.5°C
Auto-ignition temperature:	371 °C at 100.01 kPa
Decomposition temperature:	-
Dynamic viscosity:	43.428 mPa.s at 298.15 K 24.247 mPa.s at 308.15 K 12.78 mPa.s at 318.15 K 9.691 mPa.s at 328.15 K 7.044 mPa.s at 338.15 K
Surface tension	71.6 mN/m at 21.5°C
Explosive properties:	Not explosive
Oxidizing properties:	Not considered an oxidizing agent

10 STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Not expected to occur.

Note : This material is stable when properly handled and stored

10.4 Conditions to avoid

High temperatures, oxidizing conditions. May degrade when exposed to light or other radiation sources

10.5 Incompatible materials

Reacts with strong oxidizing agents. Strong acids. Isocyanates.

10.6 Hazardous decomposition products

Hezardous decomposition productcs : Carbon Monoxide and other toxic vapors.

Thermal decomposition : Incomplete combustion may produce carbon monoxide and other toxic gases.

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Acute Toxicity

typ. dose	mode	specie	amount	units	other
LD50	ims	rat	14	gm/kg	
LDLo	ims	rbt	6300	mg/kg	
LD50	ipr	mus	9718	mg/kg	
LD50	ipr	rat	6660	mg/kg	
LDLo	ivn	ckn	27	gm/kg	
LD50	ivn	dog	26	gm/kg	
LD50	ivn	mus	6630	mg/kg	
LD50	ivn	rat	6423	mg/kg	
LDLo	ivn	rbt	4200	mg/kg	
TDLo	orl	chd	79	gm/kg/56W-I	
LD50	orl	dog	22	gm/kg	
LD50	orl	gpg	19	gm/kg	
LD50	orl	mus	24	gm/kg	
LD50	orl	rat	20	gm/kg	
LDLo	orl	rbt	14300	mg/kg	
LDLo	scu	gpg	15500	mg/kg	
LD50	scu	mus	17370	mg/kg	
LD50	scu	rat	22500	mg/kg	
LD50	skn	rbt	20800	mg/kg	

11.1.2 Skin corrosion/irritation

Non-irritating to the skin.

11.1.3 Serious eye damage/eye irritation

Non-irritating to the eyes.

11.1.4 Respiratory or skin sensitization

Not sensitizing

11.1.5 Germ cell mutagenicity

Negative for genotoxicity using both in vitro and in vivo tests.

11.1.6 Carcinogenicity

Long term toxicity studies conducted in rodents and dogs demonstrate that this substance is not a carcinogen.

11.1.7 Reproductive toxicity

No toxicity to reproduction

11.1.8 Teratogenicity

No toxicity to development

11.1.9 Target Organ Systemic Toxicant - Repeated exposure

High aerosol concentrations inhaled by rats caused minor nasal and ocular signs that may have been due to mild irritation or drying effects on mucous membranes. ,Long-term studies in rodents conducted with high oral doses found no evidence of adverse effects. Ingestion by cats, however, results in species-specific hematological changes.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish : LC50: 40,613 mg/l
Exposure time: 96 HOURS
Species: Oncorhynchus mykiss (rainbow trout) LC50

Toxicity to daphnia and other aquatic invertebrates. : EC50: 18,340 mg/l
Exposure time: 48 HOURS
Species: Ceriodaphnia dubia

Toxicity to algae : EC50: 19,000 mg/l
Exposure time: 96 HOURS
Species: Pseudokirchneriella subcapita (formerly Selenastrum capricornutum)

Toxicity to bacteria : NOEC: 20,000 mg/l
Exposure time: 18 HOURS
Species: Pseudomonas putida NOEC

Toxicity to fish (Chronic toxicity) :
Remarks: Not expected to exhibit chronic toxicity to fish.

Toxicity to daphnia and other aquatic invertebrates.: NOEC: 13,020 mg/l
(Chronic toxicity) Exposure time: 7 DAY
Species: Ceriodaphnia dubia NOEC

12.2 Persistence and degradability

Readily biodegradable in aerobic conditions.
There is evidence that it is degraded under anaerobic conditions lable.

12.3 Bio-accumulative potential

Bioconcentration factor (BCF): 0,09 Remarks: This material is not expected to bioaccumulate.

12.4 Mobility in soil

Distribution among environmental compartments

Environmental releases of propylene glycol will tend to partition to water and soil, with little potential for evaporation.

Additional adviceEnvironmental fate and pathways

This material is not expected to persist in the environment and should pose little if any physical or toxicological hazards.

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)

12.6 Other adverse effects

This material is expected to be non-hazardous to aquatic species.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Dilute aqueous waste may biodegrade. Consult and comply with local, provincial and federal regulations that may apply.

14 TRANSPORT INFORMATION

14.1 ADR/RID/ADN: The substance is not subject to international regulations on transport of dangerous goods.

14.2 IMDG: The substance is not subject to international regulations on transport of dangerous goods.

14.3 ICAO/IATA: The substance is not subject to international regulations on transport of dangerous goods.

14.4 IMO (International Maritime Organization **)**
Bulk (MARPOL Annex II) : Propylene glycol (Pollution category : **OS**, ship type : IBC chapter 18 cargo)

15 REGULATORY INFORMATION

15.1 United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

15.2 Safety, health and environmental regulations/legislation specific for the substance or mixture:
Authorisation under REACH : Propane-1,2-diol is not listed on the Annex XIV.
Restriction under REACH : Propane-1,2-diol is not listed on the Annex XVII.
Other EU regulations: Propane-1,2-diol is not a SEVESO substance.
Propane-1,2-diol is not an ozone depleting substance and not a persistent organic pollutant
Germany Classification of Substances Hazardous to Waters (WGK) : 1
Global Inventory status
All Ingredients are on the following inventories or are exempted from listing

Country	Inventory
Australia	AICS
Canada	DSL
China	IECSC
European Union	EINECS
Japan	ENCS/ISHL
Korea	KECL
Mexico	INSQ
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

15.3 Chemical safety assessment: A chemical safety assessment has been carried out for this substance.

15.4 SARA(Superfund Amendments and Reauthorization Act**) Title III :** Not applicable
- Emergency planning (Sections 302 & 303)
- Emergency release notification (Section 304)
- Hazardous chemical inventory (Sections 311 & 312)
- Toxic chemical release inventory (Section 313)

15.5 California Prop. 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.6 Fire Service Act : Category IV(combustible liquids), Class III (petroleums)
Keep away fire

16 OTHER INFORMATION

16.1 Indication of change: 02/03/2022 rev : 4

16.2 NFPA Classification :

Health Hazard: 0 Fire Hazard: 1 Instability: 0

16.3Recommended restrictions on use (i.e. non-statutory recommendations by supplier):

Substance should not be used for any other purpose than for which is appointed (point 1.2). Because of the fact that specific conditions of use of substance are out of supplier's control, it is responsibility of the user to adjust the prescribed warnings to local laws and regulations. Safety information describes the product in terms of safety and it cannot be considered as technical information about product.