TECHNICAL DATA SHEET

Propylene Glycol USP Grade

USP Grade

CAS NUMBER	ALLIANCE CODE	GENERATED
57-55-6	propylene-glycol-usp-grade	2026-09-11

REVISION	REVIEWED
1.1	2026-06-17 · Andre Taki

IDENTITY & COMPOSITION

PRODUCT NAME
Propylene Glycol USP Grade

ALLIANCE CODE
propylene-glycol-usp-grade

GRADE
USP Grade

CONCENTRATION
—

CAS NUMBER
57-55-6 PubChem

FORMULA
C3H8O2 PubChem

MOLECULAR WEIGHT
76.09 PubChem

PRODUCT TYPE
pure_substance

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (C3H8O2)	not less than 99.5 percent	99.9 %	GC, thermal conductivity detector, 1-m x 4-mm column packed with 5% G16 on support S5, area normalization excluding air and water	Interpreted
Acidity	not more than 0.20 mL of 0.10 N sodium hydroxide is required	0.04	Titration of 10 mL with 0.10 N sodium hydroxide to phenolphthalein endpoint	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Chloride	0.007%	0.00003 %	USP <221>	Interpreted
Heavy metals	5 ppm	0.5 ppm	USP <231>	Interpreted
Identification A (Infrared Absorption)	Infrared Absorption 197F on undried specimen	Passes test	USP <197F>	Interpreted
Iron	0.50 weight ppm (maximum)	0.05 ppm	HOC 0290	Interpreted
Limit of Diethylene Glycol	NMT 0.10%	0.003%	GC, flame ionization detector, 0.53-mm x 30-m fused-silica G43 column, 2,2,2-trichloroethanol internal standard	Interpreted
Limit of Ethylene Glycol	NMT 0.10%	0.002%	GC, flame ionization detector, 0.53-mm x 30-m fused-silica G43 column, 2,2,2-trichloroethanol internal standard	Interpreted
Residual solvents	Pass	Passes test	USP <467>	Interpreted
Residue on ignition	0.0070 wt% max (3.5 mg from 50 g)	0.0005 wt%	Ignition of 50 g, residue moistened with 0.5 mL sulfuric acid and ignited to constant weight	Interpreted
Sulfate	0.006%	0.0005 %	USP <221>	Interpreted
Suspended matter	Pass	Passes test	HOC 0171	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Water	not more than 0.2%	0.03 %	USP <921> Method I (Karl Fischer)	Interpreted
Elemental impurities	Meets USP <232> / ICH Q3D oral limits	Passes test	USP <232> / <233>, ICP-MS	Interpreted
Microbial enumeration	TAMC ≤ 100 CFU/g; TYMC ≤ 10 CFU/g	Passes test	USP <61>	Interpreted
arsenic	1 ppm max	0.02 ppm	—	Interpreted
dp	189 Deg.C max	188.2 °C	—	Interpreted
dpg	0.1 %m/m max	0.03 %m/m	—	Interpreted
ibp	185 Deg.C min	186.8 °C	—	Interpreted
pb	1 mg/kg max	0.01 ppm	—	Interpreted
meg	0.001 %m/m max	0.0005 %m/m	—	Interpreted
oxidizing substances	0.2 ml max	0.03	—	Interpreted
po	0.001 %m/m max	0.0002 %m/m	—	Interpreted
tpg	0.03 %m/m max	0.006 %m/m	—	Interpreted
residue	0.005 % max	< 0.001 %	—	Interpreted

Specification values are guaranteed limits. Typical values are representative of production lots and are not guaranteed. Lot-specific certificates of analysis ship with every order.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE USP Grade	—	—	current
—	60%	—	propylene-glycol-60-inhibited
Technical	60%	—	propylene-glycol-60-technical-grade
USP	60%	—	propylene-glycol-60-usp-grade
USP Grade	50%	—	50-propylene-glycol-usp-grade
Technical Grade	40%	—	40-propylene-glycol-technical-grade
USP Grade	40%	—	40-propylene-glycol-usp-grade
—	20%	—	propylene-glycol-20-inhibited
Technical	20%	—	propylene-glycol-20-technical-grade
USP	20%	—	propylene-glycol-20-usp-grade
Technical Grade	—	—	propylene-glycol-technical-grade

Typical assay shown is the rolling-window mean from the sibling product's most recent lots. Grade selection drives downstream end-use — verify the sibling grade matches your specification before substitution.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	Thick odorless colorless liquid. Mixes with water. (USCG, 1999)	Published reference
Form	Liquid	Published reference
Color	10 APHA (maximum)	Interpreted
Odor	Pass	Interpreted
Specific Gravity (20 °C)	between 1.035 and 1.037	Interpreted
Density	1.04 at 68 °F (USCG, 1999) - Denser than water; will sink	Published reference
Boiling Point	189 deg C max	Interpreted
Melting Point	-76 °F (NTP, 1992)	Published reference
Flash Point	210 °F (NTP, 1992)	Published reference
Vapor Pressure	0.08 mmHg at 68 °F ; 0.13 mmHg at 77 °F (NTP, 1992)	Published reference
Solubility (water)	greater than or equal to 100 mg/mL at 70 °F (NTP, 1992)	Published reference
Refractive Index (nD 20)	1.4310 - 1.4330	Interpreted

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER
Not regulated **Adjudicated**

HAZARD CLASS
Not regulated **Adjudicated**

PACKING GROUP
Not regulated **Adjudicated**

PROPER SHIPPING NAME
Not regulated **Adjudicated**

GHS / OSHA HAZCOM 2012

SIGNAL WORD
Not regulated **Adjudicated**

H-CODES (HAZARD STATEMENTS)
Not applicable **ECHA CLP Annex VI**

P-CODES (PRECAUTIONARY STATEMENTS)
Not applicable **ECHA CLP Annex VI**

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)
— **no canonical**

ACGIH TLV
— **no canonical**

NIOSH REL
— **no canonical**

NIOSH IDLH
— **no canonical**

Transport descriptions reflect 49 CFR 172.101 lookup at time of publication. Sourced data: ECHA CLP Annex VI for harmonised classifications, NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

APPLICATION GUIDANCE

Propylene Glycol USP Grade (USP Grade) is a glycol-based heat-transfer and freeze-protection fluid. Concentration sets the freeze and burst protection; the inhibitor package sets how long the system stays protected from corrosion.

- Closed-loop heat transfer and process cooling
- Data-centre and chilled-water freeze protection
- HVAC hydronic loops and glycol makeup
- Freeze and burst protection for idle or seasonal systems
- Humectant and carrier applications (USP/food-grade propylene glycol only)

Verify concentration against the required freeze and burst protection, and confirm elastomer and metallurgy compatibility for the service temperature. Ethylene glycol is toxic by ingestion and must not be used where incidental food or potable contact is possible — specify a propylene glycol grade for those services.

STORAGE & HANDLING

RECOMMENDED STORAGE

Cool, dry, well-ventilated area in tightly sealed original containers. Neat glycols are combustible liquids with high flash points (roughly 99–111 °C) and do not require a solvent store; aqueous blends will not sustain combustion. Protect inhibited coolants from contamination and from freezing below their stated protection point.

Class-level guidance — not product-specific; the SDS controls.

HANDLING PRECAUTIONS

Chemical-resistant gloves and splash goggles. Ethylene glycol grades are toxic by ingestion and must be kept away from food, drink and animals; propylene glycol grades are not. Avoid contact with hot surfaces and hot process equipment. Inhibitor packages deplete in service — monitor rather than top up blindly.

Class-level guidance — not product-specific; the SDS controls.

INCOMPATIBILITIES

Strong oxidizers, strong acids and strong bases. Galvanized (zinc) surfaces are attacked by many inhibited coolant packages. Verify elastomer and gasket compatibility for the service temperature; EPDM is standard for glycol/water service.

Class-level guidance — not product-specific; the SDS controls.

SHELF LIFE

Consult Technical Services for product-specific shelf life

For full hazard, PPE, and emergency response guidance, refer to the Safety Data Sheet (SDS) for this product. The SDS controls in all cases where guidance differs.

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

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Not regulated for transport.
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Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS

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REVISION HISTORY

Last reviewed 2026-06-17 by Andre Taki, DOT Hazmat Specialist.

VERSION	DATE	CHANGE	TRIGGER
1.1	2026-06-17	Canonical data re-verified: 3 fields updated against independent vendor SDSs, CLP Annex VI, 49 CFR, and OSHA HazCom 2024 (GHS classification, hazard/precautionary codes, signal word, physical properties as applicable). • countryOfOrigin · canonical adjudication / reground (coa.data_provenance) • dotSubsidiaryHazardClass · canonical adjudication / reground (coa.data_provenance) • hsCode · canonical adjudication / reground (coa.data_provenance)	canonical_change
1.0	2026-05-20	Initial URL-first TDS published from canonical chemistry registry.	initial

This Technical Data Sheet is provided for technical reference. The Safety Data Sheet (SDS) controls in all cases where guidance differs. Values reflect Alliance Chemical canonical data at time of generation; subsequent revisions are recorded in the Revision History above.