

TECHNICAL DATA SHEET

Propylene Glycol 40% – USP Grade (C3H8O2)

USP Grade · 40%

CAS NUMBER

57-55-6

ALLIANCE CODE

40-propylene-glycol-usp-grade

GENERATED

2026-08-31

REVISION

1.2

REVIEWED

2026-07-06 · Andre Taki

IDENTITY & COMPOSITION

PRODUCT NAME

Propylene Glycol 40% – USP Grade (C3H8O2)

ALLIANCE CODE

40-propylene-glycol-usp-grade

GRADE

USP Grade

CONCENTRATION

40%

CAS NUMBER

57-55-6 [PubChem](#)

FORMULA

C3H8O2 [PubChem](#)

MOLECULAR WEIGHT

76.09 [PubChem](#)

PRODUCT TYPE

mixture

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Chloride	28 ppm max.	0.00002 %	—	Derived by dilution
Diethylene glycol	NMT 0.040 %	0.003%	GC, flame ionization detector, G43 column (USP Limit of Diethylene Glycol and Ethylene Glycol)	Derived by dilution

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Ethylene glycol	NMT 0.040 %	0.002%	GC, flame ionization detector, G43 column (USP Limit of Diethylene Glycol and Ethylene Glycol)	Derived by dilution
Heavy metals	2.0 ppm	0.5 ppm	USP <231>	Derived by dilution
Propylene glycol concentration	39.0 – 41.0 % v/v	40.0 %	—	Commercial practice
Sulfate	0.0024 %	0.0005 %	USP <221>	Derived by dilution
Dilution water	Purified Water USP; conductivity ≤ 1.3 $\mu\text{S}/\text{cm}$ @ 25 °C	Passes test	USP <1231> / conductivity USP <645>	Interpreted
Acidity	not more than 0.08 mL of 0.10 N sodium hydroxide	0.02	USP monograph titration, 0.10 N NaOH	Interpreted
Microbial enumeration	TAMC ≤ 100 CFU/mL; TYMC ≤ 10 CFU/mL	Passes test	USP <61>	Interpreted
Iron	0.21 ppm max	0.02 ppm	HOC 0290	Derived by dilution
arsenic	0.4 ppm max	0.008 ppm	—	Derived by dilution
ash sulfated	0.002 wt% max	0.0002 wt%	—	Derived by dilution

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
dpg	0.04 % max	0.012 %	—	Derived by dilution
pb	0.41 mg/kg max	0.004 ppm	—	Derived by dilution
meg	0.0004 % max	0.00004 %	—	Derived by dilution
po	0.0004 % max	0.00002 %	—	Derived by dilution
tpg	0.012 % max	0.0016 %	—	Derived by dilution
Assay	39.0 – 41.0 %	40.0 %	—	Commercial practice

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	40%	—	current
—	60%	—	propylene-glycol-60-inhibited
Technical	60%	—	propylene-glycol-60-technical-grade
USP	60%	—	propylene-glycol-60-usp-grade

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
USP Grade	50%	—	50-propylene-glycol-usp-grade
Technical Grade	40%	—	40-propylene-glycol-technical-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
USP Grade	—	—	propylene-glycol-usp-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	Clear, colorless to pale liquid	Published reference
Odor	Mild, characteristic	Published reference
pH	5.5 – 8.0	Interpreted
Specific Gravity (20 °C)	1.027 – 1.037	Published reference
Density	1.033 g/mL at 20 °C	Published reference
Boiling Point	~104 °C	Published reference
Melting Point	–21 °C (freeze / crystallization onset)	Published reference
Flash Point	Not flammable (aqueous solution)	Published reference
Solubility (water)	Miscible with water	Published reference
Refractive Index (nD 20)	1.3705 – 1.3745	Interpreted

Polar solvent — purity vs. intended end-use (electronics, pharma, general industrial) is the dominant grade consideration. See application guidance for grade selection.

MATERIALS OF CONSTRUCTION SERVICE ENVELOPE ≈ 40%

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Buna-N (NBR) Elastomer	Fair	60	Acceptable for alcohols; poor for ketones.	Parker O-ring Chemical Compatibility
EPDM Elastomer	Fair	—	Good for alcohols, poor for esters	Cole-Parmer Chemical Compatibility
Viton (FKM) Elastomer	Fair	80	Swells in acetone and esters; avoid for those.	Parker O-ring Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
FFKM (Kalrez) Fluoropolymer	Excellent	200	Premium ester / ketone sealing	Cole-Parmer Chemical Compatibility
PTFE Fluoropolymer	Excellent	200	Universal solvent compatibility.	Cole-Parmer Chemical Compatibility
Borosilicate Glass Glass Ceramic	Excellent	100	Universally inert.	Cole-Parmer Chemical Compatibility
Glass (borosilicate) Glass Ceramic	Excellent	100	Inert	Cole-Parmer Chemical Compatibility
316L Stainless Steel Metal	Excellent	80	Inert; preferred for high-purity solvent service.	Cole-Parmer Chemical Compatibility
Aluminium Metal	Good	40	Acceptable; avoid prolonged wet contact	Cole-Parmer Chemical Compatibility
Carbon Steel Metal	Fair	50	Trace moisture causes rust; flash-rust prevention required.	Cole-Parmer Chemical Compatibility
HDPE Thermoplastic	Fair	40	Swells with many polar solvents; verify per solvent.	Cole-Parmer Chemical Compatibility
PP Thermoplastic	Good	50	Acceptable but watch swelling with esters	Cole-Parmer Chemical Compatibility
PVC Thermoplastic	Fair	25	Esters soften PVC; avoid for esters	Cole-Parmer Chemical Compatibility

Ratings reflect the service envelope (concentration × temperature) shown. Always confirm against your specific duty cycle and contact-time before equipment selection. The most cautious rating across overlapping references is shown.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

Not regulated **Adjudicated**

PACKING GROUP

Not regulated **Adjudicated**

HAZARD CLASS

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 40% – USP Grade (C₃H₈O₂) (USP Grade) is a polar solvent. Grade selection (technical, ACS, electronics, USP) determines acceptable residue and impurity levels for the intended end-use.

- Cleaning and degreasing (technical-grade)
- Coatings, inks, and adhesives formulation
- Reaction solvent for chemical synthesis
- Pharmaceutical manufacturing (USP-grade)
- Electronics-grade cleaning and rinse applications

Flammable. Bond and ground equipment during transfer. Verify grade matches end-use specification before substitution.

STORAGE & HANDLING

RECOMMENDED STORAGE

Cool, well-ventilated flammable-liquid storage area. Tightly sealed original containers. Segregate from oxidizers and acids. Bond and ground bulk storage.

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

INCOMPATIBILITIES

Strong oxidizers, strong acids, isocyanates, anhydrides. Hygroscopic — protect from atmospheric moisture for water-sensitive end uses.

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

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.

HANDLING PRECAUTIONS

Use chemical-resistant gloves and splash goggles. Bond and ground during transfer to prevent static accumulation. Eliminate ignition sources within vapor envelope.

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

SHELF LIFE

Consult Technical Services for product-specific shelf life

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

Not regulated for transport.

Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS
55

REVISION HISTORY

Last reviewed 2026-07-06 by Andre Taki, DOT Hazmat Specialist.

VERSION	DATE	CHANGE	TRIGGER
1.2	2026-07-24	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. physicalProperties · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.1	2026-07-06	Canonical data re-verified: 4 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) - physicalProperties · 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.