Technical Data Sheet

100% USP Grade Pure Castor Oil

USP Grade · 100%

Alliance Code	Revised	Revision
100-usp-pure-castor-oil	2026-10-07	1.4

CAS number	
8001-79-4	
Grade	
USP Grade · 100%	

IDENTITY & COMPOSITION

PRODUCT NAME
100% USP Grade Pure Castor Oil

ALLIANCE CODE
100-usp-pure-castor-oil

GRADE
USP Grade

CONCENTRATION
100%

CAS NUMBER
8001-79-4 Adjudicated

PRODUCT TYPE
Solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (triglyceride of ricinoleic acid)	NLT 90.0%	—	USP <401> / GC of fatty acid methyl esters	Interpreted
Acid Value	NMT 2.0	—	USP <401> Fats and Fixed Oils, Procedures, Acid Value	Interpreted
Composition of fatty acids — Ricinoleic acid	85.0–92.0	—	GC, USP Fats and Fixed Oils <401>	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Distinction from most other fixed oils	It is only partly soluble in solvent hexane (distinction from most other fixed oils), but it yields a clear liquid with an equal volume of alcohol (foreign fixed oils).	—	Solubility in solvent hexane / alcohol	Interpreted
Heavy Metals, Method II	0.001% max	—	Heavy metals (as Pb), sulfide colour comparison against lead standard	Interpreted
Hydroxyl Value	160–168	—	USP <401> Fats and Fixed Oils, Procedures, Hydroxyl Value	Interpreted
Lead	Not more than 0.1 mg/kg	—	FCC lead limit test / ICP-MS	Interpreted
Peroxide Value	NMT 10.0	—	USP <401> Fats and Fixed Oils, Procedures, Peroxide Value	Interpreted
Unsaponifiable Matter	NMT 0.8%	—	USP <401> Fats and Fixed Oils, Procedures, Unsaponifiable Matter	Interpreted
Water	NMT 0.3%	—	USP <921>	Interpreted
Free Fatty Acids	NMT 3.5 mL of 0.10 N sodium hydroxide per 10 g (≈1.0% max as oleic)	—	USP	Interpreted
Iodine Value	83–88	—	USP	Interpreted
Saponification Value	176–182	—	USP	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Arsenic as as	1.5 ppm max	—	—	Interpreted
Cadmium as cd	0.5 ppm max	—	—	Interpreted
Cis-11-eicosenoic acid	1 % max	—	—	Interpreted
Identification of castor oil by ultraviolet absorption	0.7 - 1.5 Abs	—	—	Interpreted
Linoleic acid	2.5 - 7 %	—	—	Interpreted
Linolenic acid	1 % max	—	—	Interpreted
Mercury as hg	3 ppm max	—	—	Interpreted
N-hexane	290 ppm max	—	—	Interpreted
Oleic acid	2.5 - 6 %	—	—	Interpreted
Other unidentified fatty acid	1 % max	—	—	Interpreted
Palmitic acid	2 % max	—	—	Interpreted
Stearic acid	2.5 % max	—	—	Interpreted

Values are reproduced from the current product reference. Source labels do not by themselves establish a supplier guarantee or a test result for your lot. Confirm applicable acceptance limits and request lot-specific documentation.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE USP Grade	100%	—	current
ACS Grade	100%	—	100-pure-castor-oil-acs-grade
Technical	100%	—	100-pure-castor-oil

Typical assay for each grade is the average of its recent lots. Confirm a grade meets your specification before substituting it.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	Pale yellow viscous liquid, translucent smooth	Adjudicated
Form	Liquid	Published reference
Color	NMT 2	Interpreted
Odor	Faint, characteristic vegetable-oil odor	Adjudicated
Specific Gravity	0.958–0.969 at 15–25 °C (water = 1)	Adjudicated
Boiling Point	About 313 °C (595 °F), with decomposition	Adjudicated
Melting Point	About -10 °C (14 °F); thickens and begins to solidify below this	Adjudicated
Flash Point	229 °C (444 °F), closed cup	Adjudicated
Vapor Pressure	Negligible at 20 °C	Adjudicated
Solubility (water)	Insoluble in water; soluble in ethanol	Adjudicated
Refractive Index (nD 20)	1.477 - 1.481	Interpreted
Viscosity	600–800 cSt at 25 °C	Adjudicated

MATERIALS OF CONSTRUCTION

MATERIAL	RATING	CONDITIONS	SOURCE
HDPE	Compatible	—	novaind.in
Steel	Compatible	—	novaind.in
Mild steel (MS drums)	Compatible	—	biapur.ru

Compatibility is drawn from published manufacturer and supplier documentation for this product; each rating is sourced. Confirm against your specific duty cycle before equipment selection.

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 HCS 2024

SIGNAL WORD
Not regulated Adjudicated

H-CODES (HAZARD STATEMENTS)
Not applicable Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)
Not applicable Adjudicated

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: NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

HEALTH & FIRE HAZARD

ACUTE TOXICOLOGY

LD_{50} ORAL
> 5,000 mg/kg (rat, read-across)

Adjudicated

Acute toxicology values from SDS Section 11 or NIOSH RTECS.

APPLICATIONS

Pharmacopoeial castor oil is used as a stimulant laxative and emollient mubychem.com

USP Castor Oil may be used in the manufacture of injectable dosage forms when so labeled

trungtamthuoc.com

Industrial raw material for manufacture of castor oil derivatives (HCO, 12-HSA, ricinoleic acid) and for leather, textile, resin, paint and cosmetic manufacture

biapur.ru

Chemical precursor for derivatives such as sebacic acid and 12-hydroxystearic acid novaind.in

Applications are drawn from published manufacturer and supplier documentation; each is sourced. Suitability for a specific use is the buyer's to confirm.

STORAGE & HANDLING

RECOMMENDED STORAGE

Keep closed in a cool, dry place out of direct sunlight to slow rancidity. Store away from oxidizers.

Adjudicated

HANDLING PRECAUTIONS

Use standard chemical PPE — splash goggles, gloves, lab coat. Refer to SDS for hazard-specific PPE requirements.

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

INCOMPATIBILITIES

Strong oxidizing agents; strong acids and bases.

Adjudicated

SHELF LIFE

12 months acme-hardesty.com

From date of manufacture, kept at ambient temperatures, unopened

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 2026-10-07 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

VERSION	DATE	CHANGE	TRIGGER
1.4	2026-10-07	Canonical data updated: 21 fields changed via the provenance/adjudication pipeline. • formula · canonical change (coa.data_provenance / adjudication) • molecularWeight · canonical change (coa.data_provenance / adjudication) • synonyms · canonical change (coa.data_provenance / adjudication) • odor · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • boilingPoint · canonical change (coa.data_provenance / adjudication) • meltingPoint · canonical change (coa.data_provenance / adjudication) • vaporPressure · canonical change (coa.data_provenance / adjudication) • specificGravity · canonical change (coa.data_provenance / adjudication) • solubility · canonical change (coa.data_provenance / adjudication) • viscosity · canonical change (coa.data_provenance / adjudication) • autoIgnitionTemperature · canonical change (coa.data_provenance / adjudication) • oel_other · canonical change (coa.data_provenance / adjudication) • incompatible_materials · canonical change (coa.data_provenance / adjudication) • conditions_to_avoid · canonical change (coa.data_provenance / adjudication) • hazardous_decomposition_products · canonical change (coa.data_provenance / adjudication) • storage_precautions · canonical change (coa.data_provenance / adjudication) • rcra_waste_codes · canonical change (coa.data_provenance / adjudication) • cercla_rq · canonical change (coa.data_provenance / adjudication) • recommended_use · canonical change (coa.data_provenance / adjudication) • restrictions_on_use · canonical change (coa.data_provenance / adjudication)	canonical_change
1.3	2026-10-02	Canonical data updated: 2 fields changed via the provenance/adjudication pipeline. • hazard_h_codes · canonical change (coa.data_provenance / adjudication) • hazard_p_codes · canonical change (coa.data_provenance / adjudication)	canonical_change
1.2	2026-09-30	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • boilingPoint · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • appearance · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.1	2026-06-17	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). • casNumber · canonical adjudication / reground (coa.data_provenance) • 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.