TECHNICAL DATA SHEET

100% USP Grade Pure Castor Oil

Revised: 04/27/2026

PRODUCT IDENTIFICATION

Product Name: 100% USP Grade Pure Castor Oil
CAS Number: 8001-79-4
Molecular Formula: $C_{18}H_{34}O_2$
Molecular Weight: 282.47 g/mol
Grade: USP Grade
Purity / Concentration: 100%
Synonyms: Ricinus Communis Oil, Castor Bean Oil

PRODUCT OVERVIEW

Alliance Chemical offers high-purity 100% USP Grade Castor Oil, a premium pale yellow viscous liquid derived from Ricinus communis. With a refined assay of 99.6% and an APHA color rating of 5, this product ensures superior consistency for sensitive medicinal and cosmetic formulations.

Grade Significance: USP Grade certification guarantees that the product adheres to the rigorous quality standards set by the United States Pharmacopeia, ensuring it is safe and consistent for human use.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	99.6	99	100.5	Titration with standardized NaOH
Color (APHA)	APHA	5	—	10	APHA/Hazen visual comparison
Specific Gravity (20°C)	g/mL	0.966	0.96	0.97	Density at 20°C (pycnometer or densitometer)
Residue On Ignition	%	0.2	—	0.5	Gravimetric analysis after ignition
Water Content	%	0.1	—	0.2	Karl Fischer Titration
Aluminum (Al)	ppm	0.3	—	1	ICP-OES
Arsenic (As)	ppm	0.1	—	0.5	ICP-MS
Calcium (Ca)	ppm	1	—	5	ICP-OES
Chromium (Cr)	ppm	0.1	—	0.5	ICP-OES
Cobalt (Co)	ppm	0.02	—	0.1	ICP-OES
Copper (Cu)	ppm	0.1	—	0.3	ICP-OES
Heavy Metals (as Pb)	ppm	1	—	5	ICP-MS
Iron (Fe)	ppm	0.1	—	0.5	ICP-OES
Lead (Pb)	ppm	0.05	—	0.2	ICP-OES
Magnesium (Mg)	ppm	0.5	—	2	ICP-OES
Manganese (Mn)	ppm	0.1	—	0.3	ICP-OES
Nickel (Ni)	ppm	0.05	—	0.2	ICP-OES
Potassium (K)	ppm	0.5	—	2	ICP-OES
Sodium (Na)	ppm	0.5	—	2	ICP-OES
Zinc (Zn)	ppm	0.5	—	2	ICP-OES
Ammonium (NH_4^+)	ppm	2	—	5	Ion Chromatography
Chloride (Cl^-)	ppm	0.3	—	1	Ion Chromatography
Nitrate (NO_3^-)	ppm	2	—	5	Ion Chromatography
Phosphate (PO_4^{3-})	ppm	2	—	5	Ion Chromatography
Sulfate (SO_4^{2-})	ppm	5	—	20	Ion Chromatography

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Pale yellow viscous liquid, translucent smooth	**Odor**	Mild, characteristic odor
Form	Liquid	**Boiling Point**	313°C (595.4°F)
Melting / Freezing Point	-18°C (-0.4°F)	**Flash Point**	246°C (474.8°F)
Solubility	Organic solvent soluble, water insoluble	**Molecular Formula**	$C_{18}H_{34}O_2$
Molecular Weight	282.47 g/mol	**Vapor Pressure (20°C)**	0.01 mmHg
Viscosity (25°C)	900-1000 cP	**Refractive Index (20°C)**	1.463
Density (25°C)	0.961 g/mL	**Decomposition Temp.**	Thermally stable under recommended storage

APPLICATIONS

1. **Pharmaceutical** — Used as a reliable natural laxative, this USP grade oil meets strict purity standards for internal medicinal applications.
2. **Cosmetics** — Acts as an effective moisturizing agent in skin care products, providing deep hydration and a smooth, non-comedogenic finish.
3. **Manufacturing** — Utilized as a high-performance plasticizer to enhance the flexibility and durability of specialized plastic compounds.
4. **Industrial Lubrication** — Serves as an eco-friendly, bio-based lubricant for mechanical components requiring high thermal stability and viscosity.

STORAGE & HANDLING

Castor oil should be stored in a cool, dry place in a tightly sealed container to prevent oxidative degradation and rancidity. Maintaining proper storage conditions is essential to ensure the chemical stability and safety of the product throughout its shelf life.

- Store in a cool, dry place away from direct sunlight.
- Use containers made of HDPE or glass to prevent contamination.
- Avoid exposure to high temperatures to maintain product integrity.
- Ensure proper ventilation when handling to avoid inhalation of vapors.
- Wear appropriate personal protective equipment (PPE) such as gloves and goggles.

AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: Not Classified

No GHS pictograms assigned.

Hazard Statements:

- Not Classified: Not classified as hazardous under GHS based on available data.

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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