



Product Specification

1,8-Cineole (Eucalyptol) 99.9% — Natural Isolate, Fragrance / Cosmetic / Aromatherapy

OLE-SPEC-EUC-001 | Rev 2.1 | 17 October 2026

Product Specification — 1,8-Cineole (Eucalyptol) 99.9%

Document Reference: OLE-SPEC-EUC-001 **Revision:** 2.1 **Date:** 17 October 2026 **Prepared by:** Dean Oehlmann, Managing Director **Issued by:** Oleinza Oils Pty Ltd, trading as Oleinza Naturals

Revision 2.1 change note: Allergen declaration aligned with GC specification; CLP line references Oleinza SDS; capacity and availability restated as campaign target with lead time confirmed at order.

Revision 2.0 change note: Trading name updated to Oleinza Naturals. Production site, process description, source statement, capacity and availability updated to reflect the Coburg (Victoria) distillation facility and the 2026 production campaign. Grade statement restated as monograph-purity compliance rather than pharmacopoeial manufacturing grade. Residual ethanol and glycerol limits added. Reference batch analysis added.

Product Description

Field	Detail
Product name	Oleinza 1,8-Cineole 99.9% (Eucalyptol)
INCI name	Eucalyptol
CAS number	470-82-6
EC number	207-431-5
FEMA number	2465
Molecular formula	C ₁₀ H ₁₈ O
Molecular weight	154.25 g/mol
Chemical name	1,3,3-Trimethyl-2-oxabicyclo[2.2.2]octane
Grade	Fragrance / cosmetic / aromatherapy isolate. Assay meets the purity limits of the Ph.Eur., USP and FCC Eucalyptol monographs. Not manufactured under pharmaceutical GMP.
Source	Natural 1,8-cineole of <i>Eucalyptus</i> origin. Recovered from a eucalyptus stream and purified by multi-stage fractional distillation and short-path distillation in Australia. Non-synthetic. Obtained by physical (distillation) processes only; no chemical modification.
Production site	Oleinza Naturals, 9 Gawan Loop, Coburg North, Victoria 3058, Australia
Appearance	Clear, colourless, mobile liquid
Odour	Fresh, clean, camphoraceous, cooling; characteristic eucalyptol
Country of origin	Australia
GMO status	Non-GMO (plant-derived terpenoid)

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Field	Detail
Allergen declaration	EU 1223/2009 Annex III fragrance allergens: limonene ≤ 0.2 % by specification; actual values reported on the Certificate of Analysis
Shelf life	36 months from date of manufacture (sealed, cool, dark storage ≤ 25 °C, nitrogen-blanketed drums)
Packaging	25 kg and 180 kg lacquer-lined steel drums (UN-rated); 1,000 L IBC (~920 kg)
Storage	Store sealed in original container, below 25 °C, away from heat, sparks, open flame and oxidising agents. Reseal under nitrogen after partial use.

Process Summary

Crude eucalyptol feedstock is received at Coburg and processed through three stages: (1) stripping of light ends and water on a stainless-steel short-path evaporator; (2) fractional distillation on a packed column under vacuum to isolate the 1,8-cineole heart cut; (3) final short-path polishing to remove colour bodies and heavy residues. A commercial-scale fractionation still of Oleinza's own design is being installed. Process and equipment details are documented in Oleinza's quality system and are available to qualified customers under confidentiality. Every batch is analysed by GC-FID and GC-MS (Shimadzu GC-2010 Plus / QP2010 Ultra) before release.

Specification Table

Identity & Purity

Parameter	Unit	Specification	Test Method	Frequency
Assay (1,8-cineole by GC-FID, area %)	%	≥ 99.5	GC-FID (Ph.Eur. 2.2.28)	Every batch
Identification (GC-MS)	—	Mass spectrum conforms to 1,8-cineole reference (NIST)	GC-MS	Every batch
Identification (IR)	—	Conforms to reference spectrum	FT-IR (FCC)	Quarterly
Congeeing point	°C	≥ 0	USP (651)	Every batch
Phenol content	—	Passes test (no violet colour with FeCl_3)	USP phenol limit test	Every batch

Physical Properties

Parameter	Unit	Specification	Test Method	Frequency
Specific gravity (25/25 °C)	—	0.921–0.924	Ph.Eur. 2.2.5 / USP pycnometry	Every batch
Refractive index (20 °C)	—	1.455–1.460	Ph.Eur. 2.2.6	Every batch
Optical rotation (25 °C)	°	–0.5 to +0.5	Ph.Eur. 2.2.7 / USP polarimetry	Every batch
Distilling range	°C	174–177 (at 760 mmHg)	USP Method I	Quarterly
Flash point (closed cup)	°C	≥ 49	ASTM D56 / ISO 2719	Annual

Parameter	Unit	Specification	Test Method	Frequency
Colour (visual)	—	Water-white to colourless	Visual against white background	Every batch
Colour (APHA / Pt-Co)	—	≤ 10	ASTM D1209	Every batch

Chemical Purity

Parameter	Unit	Specification	Test Method	Frequency
Residual ethanol	% w/w	≤ 0.1	GC-HS (Ph.Eur. 2.4.24)	Every batch
Glycerol	—	Not detected (< 0.01 %)	GC-FID after derivatisation	Every batch
Water content (Karl Fischer)	%	≤ 0.1	Ph.Eur. 2.5.12	Every batch
Acid value	mg KOH/g	≤ 0.2	Ph.Eur. 2.5.1	Quarterly
Peroxide value	meq O ₂ /kg	≤ 5	Ph.Eur. 2.5.5	Quarterly
Solubility in ethanol	—	1 mL dissolves in ≤ 5 mL of 60 % (v/v) ethanol	USP solubility test	Quarterly
Residue on evaporation	%	≤ 0.05	ISO 4715	Quarterly
Residual solvents	—	Passes Ph.Eur. 5.4 limits	GC-HS (Ph.Eur. 2.4.24)	Annual

GC Composition Profile

Component	Specification	Typical
1,8-Cineole	≥ 99.5 %	99.9 %
α-Pinene	≤ 0.2 %	< 0.05 %
Limonene	≤ 0.2 %	< 0.05 %
p-Cymene	≤ 0.1 %	< 0.02 %
α-Terpineol	≤ 0.1 %	< 0.02 %
Other terpenes and oxygenates (total)	≤ 0.3 %	< 0.1 %

Test method: GC-FID on polar capillary column (DB-WAX or equivalent, 30 m × 0.25 mm × 0.25 µm), area % normalisation; GC-MS for identification. Frequency: every batch.

Reference batch analysis (column tray test, 18 June 2026): GC-FID, three peaks detected, 1,8-cineole 99.98 % area; two trace components at 0.004 % and 0.011 %.

Contaminants

Parameter	Unit	Specification	Test Method	Frequency
Lead (Pb)	mg/kg	< 1.0	ICP-MS	Annual
Arsenic (As)	mg/kg	< 1.0	ICP-MS	Annual

Parameter	Unit	Specification	Test Method	Frequency
Cadmium (Cd)	mg/kg	< 0.5	ICP-MS	Annual
Mercury (Hg)	mg/kg	< 0.1	ICP-MS	Annual
Pesticide residues	—	Below Ph.Eur. 2.8.13 limits	Multi-residue GC-MS/MS	Annual

Microbiological

Anhydrous terpenoid liquid with no water activity; microbiological testing is not routinely applicable. Total aerobic microbial count and yeast/mould (Ph.Eur. 2.6.12) are available on request for customers whose specifications require them.

Sensory Evaluation (every batch)

Attribute	Acceptable	Reject
Colour	Water-white, colourless	Yellow tinge, discoloured
Odour	Clean, fresh, camphoraceous	Harsh, solvent, musty, oxidised, off-notes
Clarity	Crystal clear	Hazy, turbid, visible particulate

Regulatory & Standards Status

Standard	Status
Ph.Eur. — Eucalyptol monograph (assay $\geq$ 99.0 %)	Assay meets limit. Manufacturing is not GMP-certified; not offered as a pharmaceutical starting material without customer qualification.
USP-NF — Eucalyptol (assay $\geq$ 98.5 %)	Assay meets limit (see note above)
FCC — Eucalyptol (assay $\geq$ 98.5 %)	Assay meets limit
FEMA 2465 / FDA 21 CFR 172.515	Listed GRAS flavouring substance. Flavour use subject to customer qualification of origin.
EU Cosmetic Regulation (EC) 1223/2009	Permitted ingredient (INCI: Eucalyptol)
IFRA Standards (51st Amendment)	Eucalyptol is not IFRA-restricted. Customers should apply their own IFRA category limits for finished fragrance compounds.
EU CLP (EC) 1272/2008	Flam. Liq. 3 (H226); Skin Sens. 1B (H317). See SDS OLE-SDS-EUC-001
AICIS (Australia)	Listed on the Australian Inventory of Industrial Chemicals
REACH	Importer registration required for EU volumes > 1 t/yr; Oleinza supplies documentation to support only-representative or importer registration
ADG Code / IMDG	UN 1993 Flammable liquid, n.o.s. (Eucalyptol), Class 3, PG III

Transport & Safety

Field	Detail
UN number	UN 1993
Proper shipping name	Flammable liquid, n.o.s. (Eucalyptol)
Class / Packing group	3 / III
Flash point	49 °C (closed cup)
Boiling point	176–177 °C
GHS pictograms	GHS02 (Flame), GHS07 (Exclamation mark)
Signal word	Warning
Hazard statements	H226 Flammable liquid and vapour; H317 May cause an allergic skin reaction
Precautionary statements	P210, P233, P240, P241, P242, P243, P261, P272, P280, P302+P352, P303+P361+P353, P370+P378, P403+P235, P501
SDS	GHS-format SDS supplied with first shipment and available on request

Key Physical Constants (reference)

Property	Value
Molecular weight	154.25 g/mol
Boiling point	176–177 °C (760 mmHg)
Melting / congealing point	1–2 °C
Density (20 °C)	0.9225 g/mL
Vapour pressure (20 °C)	1.22 hPa
Water solubility (21 °C)	3,500 mg/L (slightly soluble)
Log P (octanol/water)	2.74
Miscibility	Ethanol, diethyl ether, chloroform, glacial acetic acid, fixed oils
Viscosity (20 °C)	3.4 mm ² /s

Batch Identification & Traceability

Format: EUC-YYMMDD-NN (e.g., EUC-261103-01)

Each batch is traceable from crude feedstock lot through each distillation stage, GC analysis and release via the Oleinza Plant Operations System. A Certificate of Analysis reporting assay, GC profile, physical constants, residual ethanol and water accompanies every shipment.

Capacity & Availability

Item	Detail
Current campaign	2026–27 campaign target approximately 38,000 L of 1,8-cineole 99.9 %
Commercial output	Pilot production in operation; samples and trial drums available now. Commercial parcel lead time confirmed at order
Sample quantities	100 mL to 1 L samples available ex Coburg for evaluation
Pack formats	25 kg drum (trial), 180 kg drum (standard), 1,000 L IBC (bulk)
Delivery terms	FOB Melbourne; CIF and DAP by arrangement

This specification is subject to periodic review. Oleinza Oils Pty Ltd (trading as Oleinza Naturals) reserves the right to update specifications as processing and quality data accumulate. A Certificate of Analysis accompanies each batch shipment.