



CERTIFICATE OF ANALYSIS (COA)

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Kumquat Essential Oil

Product Identification

Item	Details
Product Name	Kumquat Essential Oil
Alternative Name	Kumquat Peel Essential Oil
Botanical Name	<i>Fortunella margarita</i> / <i>Citrus japonica</i>
Plant Part	Fruit peel
INCI Name	<i>Fortunella Margarita Peel Oil</i> / supplier-confirmed INCI
CAS Number	938464-05-2
EC Number	Not universally assigned
Extraction Method	Cold expression or steam distillation, as declared by manufacturer
Product Type	Natural citrus essential oil
Country of Origin	Supplier-specific
Added Carrier	None, unless separately declared
Intended Use	Professional perfumery and cosmetic fragrance formulation

Organoleptic and Physicochemical Specifications

Test Parameter	Specification	Batch Result
Appearance	Clear, mobile liquid	Conforms
Colour	Pale yellow, golden-yellow to orange	Conforms
Odour	Fresh, sweet, juicy citrus, fruity, slightly green and peel-like	Conforms
Botanical Identification	Consistent with declared kumquat peel source	Conforms
Identification by GC or GC-MS	Chromatographic profile conforms to approved reference	Conforms
Relative Density at 20 °C	0.844–0.850	To be reported



Refractive Index at 20°C	Typically approximately 1.470–1.480	To be reported
Optical Rotation	Batch-specific	To be reported
Flash Point	Batch-specific; generally within the flammable-liquid range for limonene-rich citrus oils	To be reported
Solubility in Water	Practically insoluble	Conforms
Solubility in Ethanol	Soluble or dispersible according to concentration	Conforms
Acid Value	Within established manufacturer specification	To be reported
Peroxide Value	Within established manufacturer specification	To be reported
Water Content	Within established manufacturer specification	To be reported
Residual Solvents	Not expected for cold-expressed or steam-distilled material	Conforms
Added Antioxidant	None unless separately declared	To be reported
Added Carrier or Diluent	None declared	Conforms
Foreign Matter	Free from visible foreign matter	Conforms
Organoleptic Quality	Characteristic and acceptable	Conforms

Published reference data for CAS 938464-05-2 report an orange clear liquid and specific gravity of approximately 0.844–0.850 at 20°C.

Representative Chromatographic Profile

Constituent	Representative Status or Range
D-Limonene	Major constituent; commonly approximately 70–96%
Myrcene	Present, usually minor
α-Pinene	Minor to trace
β-Pinene	Minor to trace
γ-Terpinene	Minor to trace
Germacrene D	Minor or trace
Octanal	Present, batch-dependent
Decanal	Present, batch-dependent
Citral	Possible low level
Linalool	Possible low or trace level
Geraniol	Possible trace level
Citronellal	Possible trace or low level
Other naturally occurring terpenes and aldehydes	Variable



Scientific analyses identify limonene as the main component of kumquat fruit essential oil, with reported fruit-oil concentrations of approximately 69.9–94.4% and other studies reporting levels above 90%.

The table is representative and must not replace the actual batch GC-MS report.

Purity Declaration

The product is expected to consist of 100% Kumquat Essential Oil obtained from kumquat fruit peel.

Unless separately declared:

- No synthetic fragrance ingredient is intentionally added.
- No carrier oil is intentionally added.
- No solvent is intentionally added.
- No colourant is intentionally added.
- No preservative is intentionally added.
- No antioxidant is intentionally added.

Storage and Stability

Store:

- In the original tightly sealed container
- At approximately 15–25 °C
- Protected from direct sunlight and heat
- With minimum container headspace
- Away from strong oxidising agents
- In a cool, dry and well-ventilated area
- Preferably under nitrogen for extended bulk storage

Limonene-rich citrus oils oxidise on exposure to air, light and heat. Oxidation can alter the odour and increase sensitisation potential. Containers should therefore be tightly closed immediately after use.

Shelf Life

Recommended retest period: 12–24 months, subject to the original producer's stability programme and storage instructions.



Conclusion

The identified batch conforms to the representative quality requirements established for Kumquat Essential Oil, CAS 938464-05-2, subject to completion and verification of the actual analytical results.

This document is a representative supplier Certificate of Analysis and is not the original producer's laboratory certificate.

Authorised by
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Director
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