



CERTIFICATE OF ANALYSIS (COA)

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PRODUCT IDENTIFICATION

Parameter	Details
Product Name	Nootkatone Crystals
Chemical Name	(+)-Nootkatone
INCI Name	Nootkatone
CAS Number	4674-50-4
EC Number	225-124-4
FEMA Number	3166
Molecular Formula	C ₁₅ H ₂₂ O
Molecular Weight	218.34 g/mol
Product Type	Natural Aroma Chemical
Physical Form	Crystalline Solid
Natural Source	Natural valencene or botanical citrus source
Batch Number	NKT-NAT-2607

ORGANOLEPTIC ANALYSIS

Test	Specification	Representative Result
Appearance	White to pale yellow crystalline solid	Conforms
Colour	White to pale yellow	Conforms
Odour	Powerful, fresh grapefruit, citrus, woody and slightly bitter	Conforms
Foreign Matter	Absent	Conforms
Identity	Corresponds to approved reference standard	Conforms



PHYSICO-CHEMICAL ANALYSIS

Test	Specification	Representative Result
Assay by Gas Chromatography	Minimum 98.0%	98.7%
Melting Point	Minimum 32 °C	35.6 °C
Recommended Commercial Range	34–38 °C	Conforms
Specific Optical Rotation $[\alpha]^{20}_D$	+165° to +185°	+174.2°
Water Content	Maximum 0.50%	0.08%
Residue on Ignition	Maximum 0.10%	0.03%
Solubility in Ethanol	Soluble	Conforms
Identity by GC/MS	Corresponds to Nootkatone reference	Conforms
Identity by Infrared Spectrum	Corresponds to reference spectrum	Conforms
Flash Point	Above 100 °C	Conforms

Published specifications for (+)-Nootkatone report a minimum GC purity of 97%, melting point of 34–38 °C and specific optical rotation of approximately +170° to +180°. The applicable IFRA specification is more stringent, requiring at least 98% purity and a melting point of at least 32 °C.

CHROMATOGRAPHIC PURITY PROFILE

Component	Specification	Representative Result
(+)-Nootkatone	Minimum 98.0%	98.7%
Related Terpenoid Impurities	Maximum 2.0%	1.1%
Residual Valencene	Maximum 0.50%	0.18%
Unknown Individual Impurity	Maximum 0.50%	0.09%
Total Unknown Impurities	Maximum 1.00%	0.22%

IFRA PURITY REQUIREMENT

Requirement	Result
Nootkatone Purity Minimum 98%	Conforms
Melting Point Minimum 32 °C	Conforms
Lower-Purity Grade	Not applicable
Suitable as Fragrance-Grade Nootkatone	Yes



Under the IFRA Standard, Nootkatone used as a fragrance ingredient must be at least 98% pure and must have a melting point of at least 32 °C.

PURITY AND QUALITY STATUS

Assessment	Result
Natural Origin	Conforms
Added Synthetic Fragrance	None
Added Carrier or Diluent	None
Added Preservative	None
Artificial Colour	None
GMO Status	Not intentionally produced from genetically modified material
Animal-Derived Material	None
BSE/TSE Risk	Not applicable
Adulteration	Not detected by representative quality assessment

STORAGE CONDITIONS

Store:

- In the original tightly closed container
- Preferably at 5–15 °C
- Protected from heat, air, moisture and direct sunlight
- Under inert gas where practical
- Away from strong oxidising agents

The material may soften or liquefy above its melting range. This does not necessarily indicate deterioration. Allow it to recrystallise under controlled storage conditions before assessment.

SHELF LIFE

24 months from the manufacturing date when stored unopened under the recommended conditions.

CONCLUSION

The representative analytical results conform to the established specification for:



Nootkatone Crystals – Natural

The material also conforms to the IFRA fragrance-grade purity specification of:

- Minimum 98% Nootkatone
- Minimum melting point of 32°C

This Certificate of Analysis is based on representative commercial values and must be replaced by actual batch-specific laboratory data where available.

AUTHORISED BY

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Director
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