

TECHNICAL DATA SHEET

AMBROXIDE CRYSTALS

Natural plant-derived aroma chemical with a powerful and persistent amber-woody character

1. RAW MATERIAL IDENTIFICATION

Product name	Ambroxide Crystals
Chemical name	Dodecahydro-3a,6,6,9a-tetramethylnaphtho[2,1-b]furan
Synonyms	Ambroxide; Ambrox; Ambroxan; Amberxan; Ambroxene; Sclaroxan; L'Ambrox; Ambermor
INCI name	DODECAHYDRO-TETRAMETHYLNAPHTHOFURAN
CAS number	6790-58-5
Additional CAS number stated in the TDS	3738-00-9
EC number	229-861-2
FEMA number	3471
FLAVIS number	13.072
IUPAC name	(3aR,5aS,9aS,9bR)-3a,6,6,9a-Tetramethyldodecahydronaphtho[2,1-b]furan
Molecular formula	C ₁₆ H ₂₈ O
Molecular weight	236.40 g/mol
Chemical group	Polycyclic terpene ether
Raw material origin	Natural, plant-derived
Raw material category	Aroma chemical

TECHNICAL DATA SHEET

2. OLFACTORY CLASSIFICATION AND ODOUR PROFILE

Fragrance note	Base note
Primary olfactory family	Ambery
Secondary olfactory family	Woody
Odour profile	Powerful and persistent amber-woody odour with nuances of ambergris, dry cedarwood, resin, tobacco and slightly sweet wood
Application	Fragrance compositions and cosmetic products

3. DESCRIPTION AND FUNCTION IN FRAGRANCE COMPOSITION

Ambroxide Crystals is an exceptionally persistent amber-woody aroma chemical, recognised for its dry, warm and elegant odour profile inspired by ambergris. Its odour combines nuances of dry wood, cedar, mineral amber, soft resin, tobacco and discreet sweetness, with a characteristic clean and almost leathery tone.

It is one of the most important modern substitutes for natural ambergris. It does not reproduce its complete and complex odour profile, but provides the recognisable dry, warm, diffusive and long-lasting ambery character that has become a foundation of many modern fragrances.

The material has exceptional substantivity and remains perceptible during the final stage of fragrance development. It gives the composition volume, depth and a pronounced trail without the heaviness associated with traditional sweet amber bases. At lower levels it acts as a subtle enhancer and fixative, while at higher concentrations it becomes the central theme of the composition.

According to the manufacturer's documentation, the product is natural and plant-derived. Its odour character is historically associated with ambroxide, a compound formed through oxidative degradation of ambrein from ambergris, whereas modern commercial variants are produced from plant-derived terpene precursors, most commonly sclareol.

Functional role in perfumery: Powerful amber-woody base note, fixative and diffusivity enhancer. It extends fragrance longevity, provides volume, depth and a distinctive trail, links woody, ambery, musky and leathery elements and supports their gradual and harmonious development.

4. APPLICATION AND OLFACTORY COMPATIBILITY

Recommended use in fragrances: Ambroxide Crystals is used to build dry ambery, woody and mineral base notes and to increase the longevity, diffusivity and overall volume of a fragrance composition.

It is used to create and modify:

- ambery and amber-woody accords;
- compositions inspired by ambergris;
- dry, mineral and salty-amber fragrances;
- woody, cedarwood and sandalwood accords;
- musky and woody-musky compositions;
- leathery, tobacco and mildly smoky accords;
- modern fougère and chypre fragrances;
- marine and ozonic compositions;
- floral and citrus fragrances requiring a more stable base structure;
- masculine, feminine and unisex fragrances.

It combines well with Iso E Super, Cashmeran, Cedramber, Timberol, Norlimbanol, Ambermax, Cetalex, Ambrofix, cedarwood and sandalwood materials, vetiver, patchouli, labdanum, musk aroma chemicals, vanillin, ethyl vanillin, ionones, Hedione and citrus essential oils.

TECHNICAL DATA SHEET

5. RECOMMENDED USE

Recommended use level	0.10-5.00% in the fragrance concentrate
0.10-1.00%	Fixative and subtle amber-woody modifier
1.00-5.00%	Pronounced ambery effect and stronger fragrance trail
Higher levels	Compositions in which Ambroxide is the central olfactory theme
Laboratory dilution	10% in ethanol, DPG, triethyl citrate or another suitable perfumery solvent

The crystals must be dissolved in a suitable perfumery solvent before use. Dissolution may be accelerated by gentle heating with stirring, taking care not to heat the solvent near an open flame or another ignition source. The stated range is a formulation recommendation, not a regulatory maximum concentration.

IFRA certificate: According to the manufacturer's certificate prepared in accordance with the 51st IFRA Amendment, Ambroxide is permitted up to 100% in the listed product categories. This is not a recommendation for use at 100%; the final level must be determined according to the desired olfactory effect, safety assessment and intended use of the finished product.

6. PHYSICOCHEMICAL AND TECHNICAL DATA

Appearance	Solid crystals
Colour	White
Specific optical rotation	From -24° to -21°
Melting point	74-76 °C
Flash point	161 °C, closed-cup method
Vapour pressure	0.009 mmHg at 25 °C
Log Pow	Approximately 5.411
Loss on drying	Maximum 0.50%
Purity	99-100%
Water solubility	Insoluble
Solubility in ethanol	Soluble
Refractive index	Not applicable to the crystalline form
Storage	In a dry and dark place, in the original, hermetically sealed container, protected from moisture, air and heat sources
Shelf life	24 months

TECHNICAL DATA SHEET

7. STABILITY AND STORAGE

Stable under normal conditions of use and storage. Avoid strong oxidising agents, moisture, prolonged exposure to air and elevated temperatures. Carefully reseal the container immediately after use. Confirm stability and compatibility in the finished formulation and intended packaging.

8. REGULATORY DATA AND STATUS

Origin: Natural, plant-derived, according to the manufacturer's documentation.

Vegan status: Vegan; contains no animal-derived ingredients.

GMO status: Not stated in the supplied TDS.

Nanomaterials: Not stated in the supplied TDS.

Endocrine disruptors: Contains no substances identified as endocrine disruptors at a concentration of 0.1% or higher.

9. SAFETY INFORMATION

Ambroxide Crystals is intended for professional use as an ingredient in fragrance and cosmetic compositions. Direct application of the undiluted material to the skin is not recommended.

According to the supplied SDS, the product is not classified as hazardous under Regulation (EC) No 1272/2008 - CLP. No GHS pictograms, signal word or hazard statements are required.

Acute oral toxicity	No data available
Acute dermal toxicity	No data available
Skin irritation	No data available
Serious eye damage / irritation	No data available
Respiratory or skin sensitisation	No data available
Phototoxicity	No data available
PBT status	No data available
vPvB status	No data available

During professional handling, avoid creating or inhaling crystalline dust, direct contact with skin and eyes and release into the environment. Use protective gloves and eye protection when required by the risk assessment and ensure adequate ventilation.

10. DISCLAIMER

The information applies solely to the described raw material and does not replace the specification, COA, IFRA documentation or SDS issued by the specific manufacturer. The user is responsible for verifying suitability, stability, safety and regulatory compliance in the intended application and target market. This document does not constitute regulatory approval or a guarantee of finished-product properties.