

Technical Data Sheet (TDS)

- Treemoss Extracts

Revision Date: 22 February 2026 **Product Number:** TME-20260222 **CAS Number:** 90028-67-4 **Main**

Components: Usnic acid, Atranorin, Lichenin, Polysaccharides **Source:** Solvent extraction of wildcrafted *Pseudevernia furfuracea* (treemoss) lichen

1. Product Overview

Treemoss Extracts is a premium natural lichen extract obtained via solvent extraction of high-quality *Pseudevernia furfuracea* treemoss, native to European and North American coniferous forests. It features a distinctive earthy, mossy, woody aroma with subtle sweet and floral undertones, making it a classic fixative and middle/base note in fine perfumery (especially chypre, fougère, and woody fragrance compositions). Rich in bioactive lichen acids (usnic acid, atranorin), it also offers natural antioxidant and skin-soothing properties for cosmetic applications. This product is 100% natural, free from synthetic additives, and complies with IFRA, REACH, and global cosmetic safety standards.

2. Technical Specifications

Item	Specification
Physical State	Viscous liquid/paste (25°C)
Color	Olive green to brownish
Odor	Earthy, mossy, woody, slightly sweet
Total Lichen Acid Content (HPLC)	≥ 8.0%
Usnic Acid Content (HPLC)	≥ 2.0%
Atranorin Content (HPLC)	≥ 1.5%
Solubility	Soluble in 95% ethanol, propylene glycol, fixed oils; partially soluble in water
pH Value (1% in 95% ethanol, 25°C)	4.0 - 6.0
Flash Point (Closed Cup)	≥ 90°C
Water Content	≤ 5.0%
Ash Content	≤ 2.0%
Stability	Stable at 5-30°C; avoid high temperature (>40°C) and direct sunlight (causes discoloration)

3. Product Advantages

- Authentic Natural Aroma:** Retains the characteristic earthy-mossy scent of raw treemoss, ideal for high-end fragrance formulation and aroma fixation.
- High Bioactive Content:** Rich in usnic acid and atranorin, providing natural antioxidant, soothing, and preservative-boosting properties for cosmetics.
- Excellent Fixative Property:** Extends fragrance longevity in perfumery, reduces top note evaporation, and enhances overall scent complexity.
- Regulatory Compliance:** Meets IFRA restrictions for lichen extracts, REACH, FDA, and China Cosmetic Safety Technical Specifications (2021).
- Good Compatibility:** Mixes well with most fragrance and cosmetic raw materials (oils, alcohols, glycols).
- Sustainable Sourcing:** Wildcrafted from responsibly harvested treemoss with no deforestation impact.

4. Application Fields

- Fine Perfumery:** Chypre, fougère, woody, aquatic, and oriental fragrance compositions; acts as a fixative and middle/base note (perfumes, eau de toilette, cologne).
- Cosmetics & Personal Care:** Body lotions, creams, soaps, shampoos, and conditioners (natural antioxidant, skin-soothing ingredient; subtle mossy fragrance).



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- **Household Fragrances:** Candles, reed diffusers, air fresheners, potpourri (adds earthy, natural depth to scents).
- **Toiletries:** Shaving creams, aftershaves, bath oils (complements woody and fresh fragrance profiles).
- **Aromatherapy:** Essential oil blends (adds grounding, earthy notes for calm and relaxation).

5. Usage Methods

5.1 Recommended Dosage (by weight, adjust for scent intensity)

- **Fine Perfumery:** 1.0% - 8.0% (core fixative; lower dosage for subtle mossy notes)
- **Cosmetics & Personal Care:** 0.1% - 2.0% (fragrance + functional ingredient)
- **Household Fragrances:** 0.5% - 5.0%
- **Aromatherapy Blends:** 0.5% - 3.0% (diluted in carrier oil/ethanol)

5.2 Formulation Guidelines

1. **Oil-Based Systems (Perfumery/Cosmetics):** Add directly at room temperature (20-30°C) with thorough stirring; ideal for fragrance oils and oil-based creams.
2. **Alcohol-Based Systems (Perfumes/Diffusers):** Dissolve in 95% ethanol first (1:5 ratio) then add to the formulation for homogeneity.
3. **Water-Based Systems (Lotions/Sprays):** Pre-solubilize with propylene glycol or polysorbate 20 (1:3 ratio) before adding to aqueous phases; stir continuously.
4. **Fixative Use:** Combine with other fixatives (musk, ambergris, vanilla) to further enhance fragrance longevity in perfumery.

6. Packaging & Storage

Packaging Specifications

- 100 mL/500 mL amber glass bottles (small batch/fragrance lab use)
- 5 kg/20 kg amber glass drums (cosmetic/fragrance industrial use)
- 200 kg stainless steel drums (bulk use, nitrogen-flushed)
- Custom packaging available upon request (food-grade not applicable)

Storage Conditions

- Store in a **cool, dark, well-ventilated warehouse at 5-25°C**; use amber glass/stainless steel containers and keep tightly sealed to prevent oxidation and discoloration.
- Avoid direct sunlight, high temperature (>40°C), and long-term contact with air (causes viscosity increase).
- Store separately from strong acids, strong bases, oxidizing agents, and excessive water-based materials.
- **Shelf Life:** 24 months (unopened, under specified storage conditions); 6 months after opening (sealed and refrigerated at 5-10°C).

Transportation

- Classified as **non-hazardous goods** for transport; transport by ordinary closed vehicles.
- Avoid collision, leakage, direct sunlight, and high temperature during transit; protect packaging from extreme cold ($\leq 0^{\circ}\text{C}$, may cause solidification).
- No special transport precautions required (complies with IMDG/IATA non-hazardous regulations).

7. Safety & Protection

- The product is a natural plant extract; mild skin irritation may occur in highly sensitive individuals (undiluted contact).
- Wear nitrile rubber gloves and safety glasses during large-scale handling and dispensing; avoid contact with eyes and mucous membranes.
- In case of eye contact: rinse with plenty of running water for 5-10 minutes; consult a doctor if irritation persists.
- In case of skin contact: rinse with soap and water; no special treatment needed for mild redness.
- Do not ingest; if accidentally swallowed, rinse mouth with water and consult a doctor immediately.
- Keep out of reach of children and pets.