

Material Safety Data Sheet (MSDS)

Product Name: Tea Tree Oil

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Supplier:

Rawpharma Biz Pvt Ltd

1101- City Centre 2,

Science City Road,

Sola Ahmedabad Gujarat,

India - 380060.

Contact No.: +91 97272 88479

Email: info@rawpharmabiz.com

Website: www.rawpharmabiz.com

1. Identification of the Substance and Company

Product Name: Tea Tree Oil

Chemical Name: Tea Tree Essential Oil

Synonyms: Melaleuca Oil, Tea Tree Essential Oil, Melaleuca alternifolia Leaf Oil

CAS Number: 68647-73-4

EC Number: 285-377-1

Chemical Nature: Essential Oil / Natural Plant Extract

Recommended Use:

Cosmetic and personal-care formulations, aromatherapy, fragrance applications, topical formulations, cleaning products, and other applications where the specified grade is suitable.

2. Hazard Identification

GHS Classification: Tea Tree Oil may be classified as a hazardous substance depending on the applicable regulatory system and the exact product specification. Representative SDS classifications include flammable liquid, harmful if swallowed, aspiration hazard, skin irritation, skin sensitization, serious eye irritation, and aquatic environmental hazards.

Hazard Statements:

- Flammable liquid and vapor.
- Harmful if swallowed.
- May be fatal if swallowed and enters airways.
- Causes skin irritation.
- May cause an allergic skin reaction.
- Causes serious eye irritation.
- May cause respiratory irritation.
- Toxic to aquatic life and may cause long-lasting effects, depending on the applicable classification.

Potential Health Effects

Inhalation: Vapors, mist, or concentrated aerosol may irritate the respiratory tract.

Skin Contact: May cause skin irritation and allergic skin sensitization following direct or repeated exposure.

Eye Contact: May cause serious eye irritation.

Ingestion: Harmful if swallowed. Aspiration into the respiratory tract following ingestion may cause serious or potentially fatal lung injury.

Environmental Hazards: Tea Tree Oil and some of its components may be toxic to aquatic organisms and may cause long-lasting environmental effects. Avoid uncontrolled release into waterways and soil.

Precautionary Statements:

- Keep away from heat, sparks, flames, and other ignition sources.
- Do not breathe concentrated vapors or mist.
- Avoid contact with skin and eyes.
- Wear protective gloves and eye protection.
- Wash thoroughly after handling.
- Do not induce vomiting if swallowed; seek medical advice immediately.
- Avoid release to the environment.
- Keep container tightly closed.

3. Composition / Information on Ingredients

Tea Tree Oil is a natural essential oil obtained primarily from the leaves and terminal branches of *Melaleuca alternifolia* and related tea-tree species.

The oil is a complex mixture of naturally occurring volatile compounds, including terpinen-4-ol, gamma-terpinene, alpha-terpinene, alpha-pinene, 1,8-cineole, terpinolene, and related monoterpenes and sesquiterpenes. The exact composition varies according to botanical source, geographical origin, extraction method, and grade.

The principal components and their concentrations should be verified against the product specification or Certificate of Analysis for the particular batch.

4. First Aid Measures

Inhalation: Move the affected person to fresh air immediately. Keep the person at rest. If coughing, irritation, dizziness, breathing difficulty, or other symptoms persist, obtain medical attention.

Skin Contact: Remove contaminated clothing. Wash the affected skin thoroughly with plenty of soap and water. If irritation, redness, or allergic reaction develops, obtain medical attention.

Eye Contact: Immediately flush eyes with plenty of clean water for at least 15 minutes while holding the eyelids open. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

Ingestion: Rinse mouth thoroughly with water. Do not induce vomiting. If swallowed, particularly if a significant quantity has been ingested, obtain immediate medical advice because aspiration into the lungs can cause severe injury.

Most Important Symptoms: Skin irritation, Allergic skin reaction, Serious eye irritation, Respiratory irritation, Nausea or gastrointestinal discomfort, Coughing or breathing difficulty following aspiration.

5. Fire Fighting Measures

Suitable Extinguishing Media: Alcohol-resistant foam, Carbon dioxide (CO₂), Dry chemical powder, Water spray for cooling surrounding containers.

Unsuitable Extinguishing Media: Avoid direct high-pressure water jets on burning oil because they may spread the burning liquid.

Fire Hazards: Tea Tree Oil is a flammable liquid and may produce flammable vapors. Vapors may form ignitable mixtures with air and may travel to an ignition source.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, smoke, and irritating organic decomposition products may be produced during combustion.

Protective Equipment: Firefighters should wear self-contained breathing apparatus (SCBA) and full protective clothing.

Special Fire Precautions: Cool exposed containers with water spray. Remove containers from the fire area only when this can be done safely. Prevent contaminated firefighting water from entering drains or watercourses.

6. Accidental Release Measures

Personal Precautions:

- Eliminate all ignition sources.
- Evacuate unnecessary personnel from the spill area.
- Avoid breathing vapors or mist.
- Avoid skin and eye contact.
- Ensure adequate ventilation.
- Wear suitable protective equipment.

Environmental Precautions: Prevent the product from entering drains, sewers, soil, rivers, lakes, and other natural waterways. Large releases should be reported and managed according to applicable environmental requirements.

Cleanup Methods: Contain the spill using sand, earth, vermiculite, or another suitable inert absorbent. Collect the absorbed material into suitable, tightly closed containers.

Clean the contaminated area thoroughly after removal of the bulk material.

Do not use materials or equipment that may create sparks in an area where flammable vapors may be present.

7. Handling and Storage

Handling:

- Keep away from heat, sparks, flames, and other ignition sources.
- Avoid breathing concentrated vapors or mist.
- Avoid contact with skin and eyes.
- Use suitable ventilation.
- Do not eat, drink, or smoke while handling.
- Wash hands thoroughly after handling.
- Use appropriate spill-control and fire-prevention procedures.

Storage: Store in tightly closed, compatible containers in a cool, dry, well-ventilated area.

Protect from direct sunlight, excessive heat, sparks, open flames, oxidizing agents, and incompatible materials.

Keep containers tightly closed when not in use.

Tea Tree Oil should preferably be stored under conditions that minimize heat, light, and prolonged air exposure because essential-oil components may oxidize during storage.

8. Exposure Controls / Personal Protection

- **Engineering Controls:** Provide adequate general ventilation. Use local exhaust ventilation where vapors, mist, or aerosol may be generated.

Personal Protective Equipment

- **Respiratory Protection:**

Normally not required for brief handling in a well-ventilated area. Use an appropriate organic-vapor respirator where vapor concentrations may become significant or ventilation is inadequate.

- **Eye Protection:**

Chemical safety goggles or suitable splash-resistant eye protection.

- **Hand Protection:**

Chemical-resistant protective gloves.

- **Skin Protection:**

Suitable protective clothing and footwear. Avoid prolonged or repeated skin contact.

- **Hygiene Measures:**

Wash hands thoroughly after handling. Remove contaminated clothing and wash before reuse.

9. Physical and Chemical Properties

Appearance: Clear to pale yellow to yellow oily liquid

Odor: Characteristic strong tea-tree, camphoraceous, herbal aroma

Physical State: Liquid

pH: Not applicable

Specific Gravity: Typically approximately 0.88–0.90 at ambient temperature, depending on grade

Density: Approximately 0.88–0.90 g/cm³ at ambient temperature

Solubility: Practically insoluble in water; soluble in alcohol and many organic solvents

Viscosity: Low; varies with temperature and composition

Boiling Point: Typically within a high-temperature range; may decompose before complete boiling depending on composition

Flash Point: Typically around 50°C or above, depending on grade and test method

Auto-Ignition Temperature: Not reliably established for all grades

Explosive Properties: Vapors may form flammable or explosive mixtures with air

Oxidizing Properties: None

Vapor Pressure: Low to moderate depending on temperature

Vapor Density: Greater than air for many volatile components

Refractive Index: Varies with grade and composition

10. Stability and Reactivity

Reactivity: Not normally reactive under recommended storage and handling conditions.

Chemical Stability: Stable when stored in tightly sealed containers under cool, dry conditions. The oil may undergo oxidation when exposed to air, heat, light, or incompatible materials.

Conditions to Avoid: Heat, Sparks and open flames, Direct sunlight, Prolonged air exposure, Excessive temperatures, Contamination.

Incompatible Materials: Strong oxidizing agents and materials that may promote oxidation.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, smoke, aldehydes, ketones, and other irritating organic decomposition products may form during severe heating or combustion.

11. Toxicological Information

Acute Toxicity: Harmful if swallowed. The actual toxicity depends on concentration, route of exposure, and product composition.

Skin Irritation: Causes skin irritation.

Skin Sensitization: May cause an allergic skin reaction in susceptible individuals.

Eye Irritation: Causes serious eye irritation.

Respiratory Effects: Vapors, mist, or concentrated aerosol may irritate the respiratory tract.

Aspiration Hazard: May be fatal if swallowed and enters the airways. Do not induce vomiting after ingestion unless specifically instructed by medical personnel.

Carcinogenicity: Not classified as carcinogenic based on currently available information.

Mutagenicity: No definitive evidence of mutagenicity for the finished material under normal intended conditions of use.

Reproductive Toxicity: Classification may depend on the composition and applicable regulatory requirements. Refer to the product-specific analytical specification and current regulatory assessment where required.

12. Ecological Information

Ecotoxicity: Tea Tree Oil may be toxic to aquatic organisms and may cause long-lasting adverse effects depending on the applicable classification.

Persistence and Degradability: The constituents are organic natural products and may undergo environmental degradation; the rate varies among individual components.

Bioaccumulative Potential: Some hydrophobic essential-oil constituents may partition into aquatic organisms. Avoid unnecessary environmental release.

Mobility: The oil is practically insoluble in water and may spread across water surfaces.

Environmental Precautions: Prevent discharge into drains, surface waters, groundwater, and soil.

13. Disposal Considerations

Dispose of unused product, contaminated absorbents, and packaging through an approved waste-management route in accordance with applicable local, regional, and national regulations.

Do not discharge Tea Tree Oil into drains, sewers, waterways, or soil.

Collect spilled product and contaminated absorbents into suitable, closed containers.

Contaminated packaging should be emptied and disposed of according to applicable requirements.

14. Transport Information

Tea Tree Oil requires special transport attention because it is a flammable liquid and may also be regulated for health and environmental hazards. Current supplier SDSs show that transport classification can vary with the applicable transport regime and exact product specification. Some SDSs identify UN 1169, Extracts, Aromatic, Liquid (Oils, tea-tree), Class 3, Packing Group III, while other supplier SDSs use different classifications or exemptions. Therefore, the exact transport entry should be verified against the actual product grade, flash point, packaging, and current ADR/RID, IMDG, IATA, or national requirements before shipment.

Commonly Used UN Number: UN 1169, where the applicable transport regulation and product characteristics require classification as an aromatic extract/tea-tree oil.

UN Proper Shipping Name: EXTRACTS, AROMATIC, LIQUID (TEA TREE) / EXTRACTS, AROMATIC, LIQUID (Oils, tea-tree), where applicable.

Transport Hazard Class: Class 3 – Flammable Liquid, where regulated under the applicable transport provisions.

Packing Group: Commonly Packing Group III for UN 1169 shipments.

Environmental Hazard: May be environmentally hazardous depending on the applicable transport classification and product composition.

Marine Pollutant: Classification depends on the applicable transport rules and composition; some SDSs identify tea-tree-oil components as marine pollutants.

Road Transport (ADR/RID): Where classified as UN 1169, Tea Tree Oil is transported as a Class 3 flammable liquid, with the applicable packing-group and labeling requirements. Packages must be approved for the relevant dangerous-goods transport category and kept securely closed.

Transport vehicles should be clean, suitable for flammable liquids, and equipped according to applicable dangerous-goods requirements.

Keep away from heat, sparks, open flames, and other ignition sources. Prevent package damage and leakage during loading, unloading, and transit.

Sea Transport (IMDG): Where classified as dangerous goods, Tea Tree Oil may be transported as a Class 3 flammable liquid, subject to the applicable UN entry, packing group, marking, labeling, documentation, and segregation requirements.

Containers should remain tightly closed and protected from excessive heat, sunlight, seawater, and physical damage.

Prevent any spill from entering the marine environment because Tea Tree Oil may be harmful to aquatic organisms.

Air Transport (IATA): Where classified as dangerous goods, Tea Tree Oil may require transport under the applicable dangerous-goods provisions for Class 3 flammable liquids. Current IATA requirements should be checked before air shipment because packaging, quantity limits, labeling, and documentation can vary by aircraft type and shipment configuration.

Use leak-resistant, approved packaging and ensure closures are securely fitted.

Special Transport Precautions:

- Keep away from heat, sparks, flames, and other ignition sources.
- Use approved packaging suitable for flammable liquids where required.
- Keep containers tightly closed.
- Protect from direct sunlight and excessive heat.
- Prevent leakage and physical damage.
- Secure packages to prevent movement during transportation.
- Avoid contact with oxidizing agents.
- Prevent release into drains and waterways.
- Use appropriate dangerous-goods labels and transport documentation where required.
- Inspect packaging before dispatch.

- Do not transport damaged or leaking containers.
- Follow applicable local, national, ADR/RID, IMDG, and IATA requirements.

Transport in Bulk According to MARPOL Annex II and IBC Code: Not applicable to normal packaged shipments. Any bulk shipment must be assessed separately against the applicable maritime and cargo requirements.

Emergency Transport Information: In case of accidental leakage, isolate the affected area and eliminate all sources of ignition. Do not smoke or use equipment capable of producing sparks near the spill.

Ensure adequate ventilation and avoid breathing vapors. Prevent the oil from entering drains, sewers, or natural waterways.

Contain the spilled material using sand, earth, vermiculite, or another suitable inert absorbent. Collect into approved, tightly closed containers for disposal.

Personnel involved in spill cleanup should wear suitable chemical-resistant gloves, eye protection, protective clothing, and appropriate respiratory protection where vapor exposure is possible.

15. Regulatory Information

- Tea Tree Oil should be handled in accordance with applicable occupational safety, environmental protection, chemical storage, transportation, and intended-use regulations.
- The product may be subject to classification and labeling requirements for flammable liquids, acute toxicity, skin irritation/sensitization, eye irritation, aspiration hazard, and environmental hazards depending on the applicable regulatory system and product composition.
- For cosmetic or personal-care use, the applicable regulatory requirements and current safety assessments should be reviewed for the intended market and concentration. Recent European scientific assessment has specifically considered Tea Tree Oil identified by CAS 68647-73-4 and related identifiers.

16. Other Information

The information contained in this Material Safety Data Sheet is based on general information available for Tea Tree Oil and is intended to provide guidance for safe handling, storage, transportation, and disposal.

Tea Tree Oil is a complex natural substance whose composition can vary according to botanical source, extraction method, origin, storage conditions, and applicable quality standard. The exact

batch specification, Certificate of Analysis, flash point, composition, and current transport classification should therefore be verified before commercial shipment.

This MSDS does not constitute a guarantee of product characteristics or suitability for any particular application. Users are responsible for ensuring compliance with all applicable local, national, and international requirements.

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- **Website:** www.rawpharmabiz.com
- MSDS are based on the manufacturer's provided information.