

Material Safety Data Sheet (MSDS)

Product Name: Thymol Crystal

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Supplier:

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1. Identification of the Substance/Preparation and Company

- **Product identifier:** Thymol (Thymol Crystal)
- **Recommended use:** Antiseptic, preservative, flavor/fragrance intermediate, laboratory reagent.
- **Restrictions on use:** Not for internal human therapeutic use without regulatory approvals.

2. Hazard(s) identification

- GHS classification (typical): Skin irritation (Category 2); Eye irritation (Category 2A); Acute oral toxicity (Category — low to moderate toxicity); Specific target organ toxicity — single exposure: may cause respiratory irritation. Combustible solid when heated.
- Signal word: **Warning** (or consult local classification which may vary).
- Hazard statements (examples): H315: Causes skin irritation. H319: Causes serious eye irritation. H302: Harmful if swallowed. H335: May cause respiratory irritation.
- Precautionary statements (summary): Avoid breathing dust/vapours; wear protective gloves/eye protection; wash thoroughly after handling; if swallowed, get medical advice; keep away from heat and ignition sources.

3. Composition / information on ingredients

- Substance: Thymol (purity variable; typical commercial grades 98-99%)
- CAS No.: 89-83-8
- Impurities: may contain small amounts of isomers, residual solvents – see certificate of analysis.

4. First-aid measures

- Inhalation: Move person to fresh air. If breathing is difficult, give oxygen and seek medical attention. If not breathing, give artificial respiration.
- Skin contact: Remove contaminated clothing. Wash skin with plenty of soap and water. If irritation persists, seek medical attention.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing and get medical attention if irritation persists.
- Ingestion: Do NOT induce vomiting unless instructed by medical personnel. Rinse mouth and seek medical advice. Provide symptomatic and supportive treatment.
- Notes to physician: Treat symptomatically. Consider monitoring for delayed effects.

5. Firefighting measures

- Suitable extinguishing media: Alcohol-resistant foam, dry chemical, carbon dioxide (CO₂), water spray.
- Unsuitable extinguishing media: direct water jet may spread burning material.
- Specific hazards: on heating decomposition may produce carbon oxides and other toxic fumes. Product may burn if exposed to flame or sufficient heat.
- Protective equipment for firefighters: Self-contained breathing apparatus (SCBA) and full protective clothing. Cool containers with water spray to prevent rupture.

6. Accidental release measures

- Personal precautions: Use PPE (gloves, eye protection, respirator if dust/vapour). Remove ignition sources. Avoid breathing dust/vapours.
- Environmental precautions: Prevent entry into drains, sewers, and waterways. If release to environment is likely, notify authorities.

- Methods for containment/cleanup: Sweep up spilled crystals, transfer to suitable containers for disposal. Avoid creating dust. For large spills, absorb with inert material (sand, vermiculite) and collect. Dispose in accordance with local regulations.

7. Handling and storage

- Handling: Avoid inhalation of dust/vapours and contact with skin/eyes. Use in well-ventilated area or under local exhaust. Use explosion-proof equipment if risk of vapour. Keep away from heat, sparks, open flames.
- Storage: Store in tightly closed, labeled containers in a cool, dry, well-ventilated area away from oxidizing agents and strong acids/bases. Protect from light and heat. Keep away from foodstuffs.
- Recommended materials for containers: Glass, HDPE, stainless steel.

8. Exposure controls / personal protection

- Occupational exposure limits: No widely recognized specific OEL for thymol in many jurisdictions — if applicable, follow your local limits or use general VOC/organic vapor limits and implement engineering controls to minimize exposure.
- Engineering controls: Use local exhaust or closed handling to keep airborne concentrations low.
- Personal protective equipment (PPE):
 - Eye/face: Safety goggles or face shield.
 - Skin: Chemical-resistant gloves (e.g., nitrile) and protective clothing.
 - Respiratory: If dust or vapor may exceed exposure limits, use appropriate respirator (organic vapor/particulate combo).
 - Hygiene: Wash hands before breaks and after work; remove contaminated clothing.

9. Physical and chemical properties

- Appearance: White to colorless crystalline solid.
- Odour: Characteristic aromatic (phenolic) odour.
- Melting point: ~49–51 °C (typical for thymol crystals).
- Boiling point: ~230–235 °C (approx.).

- Flash point: Relatively high (not easily flammable at room temp); handle as combustible when heated — follow local guidance.
 - Vapour pressure: Low at room temperature.
 - Solubility: Sparingly soluble in water; soluble in ethanol, ether, chloroform and organic solvents.
 - Relative density: ~0.97–0.99 (liquid density at 20 °C when melted).
 - pH: Not applicable (solid).
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10. Stability and reactivity

- Chemical stability: Stable under recommended storage conditions.
 - Conditions to avoid: Excessive heat, open flames, strong oxidizers.
 - Incompatible materials: Strong oxidizing agents, strong acids, strong bases.
 - Hazardous decomposition products: Carbon oxides and other toxic fumes if burned.
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11. Toxicological information

- Acute toxicity: Oral/dermal toxicity is generally low to moderate — ingestion may cause gastrointestinal irritation, nausea, vomiting, and central nervous system effects in large doses.
 - Skin corrosion/irritation: May cause skin irritation; repeated or prolonged contact may lead to dermatitis.
 - Serious eye damage/irritation: Causes eye irritation.
 - Respiratory/sensitisation: May cause respiratory irritation; not generally considered a respiratory sensitizer.
 - Chronic effects: Repeated/prolonged exposure data limited; avoid chronic excessive exposure.
 - Carcinogenicity, mutagenicity, reproductive toxicity: No definitive classification as carcinogen in most regulatory lists; consult authoritative databases for current status.
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12. Ecological information

- Ecotoxicity: Expected to be harmful to aquatic organisms at sufficient concentrations.

- Mobility: Low water solubility limits mobility, but may adsorb to sediments.
- Persistence and degradability: Organic compound; biodegradation occurs but rates depend on conditions.
- Bioaccumulative potential: Low to moderate potential; monitor in specific cases.
- Avoid release to environment; follow local reporting requirements for significant discharges.

13. Disposal considerations

- Waste treatment methods: Dispose of in accordance with local, regional, national, and international regulations. Do not discharge into drains or waterways. Incineration in approved facilities is often preferred. Contaminated packaging should be emptied and disposed of or recycled per regulations. Consult a licensed waste disposal contractor.

14. Transport information — DETAILED (read carefully and verify locally)

Important: Transport classifications and requirements can vary by jurisdiction and by concentration/packaging. The guidance below is comprehensive but general — always check the applicable national/regional rules (ADR, IMDG, IATA, UN recommendations) and the latest emergency response guides before shipment.

14.1 General statement

- Thymol is a low-volatility solid with a relatively high flash point and, in many cases, **may not be classed as a regulated dangerous good** for transport in small packaged quantities. However, depending on purity, concentration, formulation (mixtures with solvents), packaging, mode of transport and regional rules, it **may** be regulated. Always verify with the competent authority and carrier.

14.2 Recommended identification for transport documents (where regulated)

- Proper Shipping Name (example): **THYMOL** (or “Phenolic compound, solid” if thymol is not explicitly listed).
- UN Number: **Not assigned / depends on classification** — check supplier confirmation and national lists. (If mixed with flammable solvents the mixture will take the solvent UN number.)
- Transport hazard class/division: **Not classified** / or **Class 6 (Toxic)** or other — only if classification tests justify it. Do NOT assume class without testing/certification.

- Packing group: **Not assigned** unless classified as hazardous (PG II or III may apply if toxic classed).
- Marine pollutant: **No** (not listed as a marine pollutant in common lists) — but check specific national lists.

14.3 Transport conditions & segregation

- Pack in clean, dry, tightly closed inner containers within a strong outer packaging to prevent breakage. Use materials resistant to thymol (glass vials, HDPE, stainless steel).
- Protect from heat sources and direct sunlight; keep away from oxidizing agents during transport.
- Segregation: If transported with other chemicals, segregate from strong oxidizers and acids. Follow segregation rules of the applicable transport code.

14.4 Requirements by mode (guidance)

- **Road / Rail (ADR / RID):**
 - Small quantities in consumer-type, properly sealed and labeled packages may be carried without dangerous goods documentation if not classified as hazardous.
 - For classified shipments: use the relevant UN number, packaging instructions, labels, and transport document. Secure and stow to prevent movement.
- **Sea (IMDG Code):**
 - If thymol is classified as a dangerous good, the shipper must declare the UN number and proper shipping name, supply IMO Class/PG, EMS and MFAG info. If not classified, include SDS with cargo documentation and declare as non-regulated.
 - Dangerous goods must be packed, marked, and stowed per IMDG provisions.
- **Air (IATA / ICAO):**
 - Air transport is more restrictive. If thymol is not classified as a dangerous good, it may still be subject to restrictions for limited or excepted quantities. If classified, full IATA Dangerous Goods Declaration, appropriate packaging and labeling are required. Many carriers will not accept chemicals unless properly declared.
- **Inland waterways:** follow local rules (ADN in Europe) similar to ADR/IMDG.

14.5 Labeling, placarding & documentation

- If shipment is classified: apply appropriate hazard labels and placards, complete the dangerous goods declaration, include emergency contact/telephone number, provide SDS and transport emergency information.
- If not classified: include SDS and commercial invoice; mark packages clearly with product name and net weight, and emergency contact.

14.6 Limited & excepted quantities (practical)

- Many regulations permit **limited quantities (LQ)** or **excepted quantities (EQ)** for small package sizes — e.g., small retail packages of thymol crystals may be shipped as LQ without full dangerous goods paperwork. Check quantity limits in ADR, IMDG and IATA manuals and ensure packaging and labeling meet LQ/EQ rules.

14.7 Emergency response advice for transport incidents

- In case of spillage during transport: isolate area, keep away from ignition sources, wear PPE, prevent product entering drains/watercourses, collect into suitable containers. Provide SDS to emergency responders. For large fires, evacuate and follow firefighting measures in section 5.

14.8 Practical checklist for shippers (summary)

1. Confirm thymol **purity, concentration and physical form**.
2. Check current ADR/IMDG/IATA listings and national regulations for thymol (and for mixtures containing thymol).
3. If the product is mixed with solvents or other hazardous substances, classify and ship under the appropriate UN number for the mixture.
4. Determine if LQ or EQ provisions apply to intended package sizes.
5. Ensure proper packaging, labeling, documentation, and emergency contact info accompany shipment.
6. Communicate special handling/storage needs to carriers (cool, away from oxidizers, avoid heat).

15. Regulatory information

- Regulatory status: Not listed as a major restricted substance in many jurisdictions, but use is subject to local chemical, environmental, and workplace safety regulations.
- Hazard communication: Comply with local GHS labeling and SDS requirements.
- Relevant inventories: Check compliance with national chemical inventories (e.g., India: AICS/other applicable lists) for market use.

16. Other information

- Disclaimer: Information provided in this MSDS is believed to be accurate at the time of issue. It is intended only as a guide for safe handling, use, processing, storage, transportation, disposal and release, and is not a warranty or specification. Users must

verify compliance with local regulations and adapt the MSDS to their specific product batch and local legal requirements.

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