

School Material Safety Data Sheet

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CAMPHOR

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SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME AND FORMULA: CAMPHOR; $C_{10}H_{16}O$.
SYNONYMS: Natural Camphor, USP Camphor, Gum Camphor, 2-Camphanone, 2-Bornanone, 1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one, Synthetic Camphor.

CAS NUMBER: 0076-22-2 (Synthetic Camphor); 0464-49-3 (Natural Camphor); 21368-68-3 [(+), -] Camphor

INGREDIENTS: Camphor, >97%.

DOT CLASSIFICATION: Flammable Solid

MANUFACTURERS: Always request Material Safety Data Sheets from your chemical supplier. These should indicate the manufacturer of the substance and include an emergency phone number to call. The Manufacturers section of this book contains a listing of some of the larger manufacturers and available emergency numbers.



DESCRIPTION: A translucent crystalline solid with a characteristic fragrant, penetrating odor. 50% recognition threshold, 16 ppm (1.6 ppm has also been reported).

PRELIMINARY INFORMATION: Camphor is a moderately toxic compound with an aromatic odor. It can irritate and be absorbed by body tissue. This material will evolve flammable and explosive vapors when heated in air. Most common area of use would be in the chemistry lab.

SECTION 2. USE AND STORAGE INFORMATION

-- PRELIMINARY PLANNING CONSIDERATIONS --

- Safety glasses or goggles and protective clothing (rubberized apron, etc.) should be worn for all experiments.
- Be sure eyewash station and safety shower are in good working order and readily available.
- For safety, contact lenses should not be worn in the laboratory: Soft lenses may absorb irritants and all lenses may concentrate them.
- Always provide for safe disposal of all chemical waste generated in the lab. Check applicable regulations prior to use.
- Provide adequate ventilation.
- Eliminate all possible sources of ignition. Nearby electrical service and equipment should be explosion proof (no spark-generation potential).
- Avoid heating camphor in air; explosive or flammable vapors will result.

-- USAGE PRECAUTIONS AND PROCEDURES --

- READ THE LABEL and follow all precautions.
- Maintain good housekeeping practices to avoid unintentional mixing with incompatible materials.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- No smoking in storage or use area.
- Keep away from strong oxidizing agents and sources of heat or ignition.
- Avoid contact with eyes, skin, and clothing.
- Do not breathe vapors.
- Do not ingest.

-- ADDITIONAL INFORMATION --

- Material does not polymerize. It is stable under normal conditions in closed containers.
- Incompatible with strong oxidizing agents; such strong oxidizing agents as potassium permanganate and chromic anhydride.
- At 25°C about 1 g. dissolves in 800 ml. of water, making a colloidal solution. Salts of any kind should not be added to camphor water.

-- PREFERRED STORAGE LOCATION AND METHODS --

- Storage area should be cool and well ventilated. Containers should be tightly closed.
- Do not store chemicals alphabetically by name; store by chemical family instead to keep compatibles together.
- All chemical containers should be protected from physical damage and kept out of direct sunlight.
- Purchase only amounts equivalent to one year's needs.
- Should be stored in approved FLAMMABLES cabinet, away from oxidizing agents and sources of heat or ignition.
- No smoking in storage or use area.

SECTION 3. SPILLS AND DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Ventilate area of spill.
- Eliminate all possible sources of ignition. Nearby electrical service and equipment should be explosion proof (no spark-generation potential).
- Cleanup personnel should wear personal protective equipment as necessary to prevent skin or eye contact and inhalation of vapors.
- Cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop into an appropriate container (with secure lid) for disposal in accordance with existing regulations. Keep container tightly sealed.

DISPOSAL OF SMALL QUANTITIES:

- Contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.
- Small quantities of waste material may be burned in an incinerator if approved methods and applicable regulations are followed. Dissolving first in a small quantity of flammable solvent may help material burn more readily.

DISPOSAL OF LARGER AMOUNTS: Contact a licensed disposal company.

*** FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL ***

SECTION 4: HEALTH HAZARDSCurrent OSHA PEL: 8-hr. TWA: 2 mg/m³Current ACGIH TLV: 8-hr TWA: 12 mg/m³ (after a 1969 study, the 1968 TLV of 2 mg/m³ was raised by ACGIH to this current value.)

- Oral, LDLo: Human, Infant: 70 mg/kg; Dog: 800 mg/kg; Rabbit: 2000 mg/kg.
- Rabbit, Skin: 500 mg/24 hr.; mod. irritation (d-camphor).
- Camphor is a local irritant and (for large exposures) a CNS stimulant. It is readily absorbed through body tissue.
- Symptoms of excessive exposure to vapors include irritation of eyes, nose, and throat; large exposures may result in dizziness, confusion, nausea, twitching muscles, and convulsions.
- Ingestion by adult of 2 g. or more is dangerous and can produce abdominal pain, vomiting, tremors, delirium, seizures, and coma.
- Camphor has not been identified as a known or suspected carcinogen by the NTP, IARC, or OSHA.

SECTION 5: FIRST AID PROCEDURES**Eye contact:**

- Flush eyes promptly with plenty of running water for at least 15 minutes, including under the eyelids.
- Get medical attention if irritation persists.*

Skin contact:

- Flush with plenty of running water then wash exposed areas of skin with soap and water.
- Remove contaminated clothing promptly.
- Get medical help when area of skin exposure is large or if irritation persists.*

Inhalation:

- Remove victim to fresh air; restore and/or support breathing as necessary. Provide oxygen therapy if breathing is difficult. Keep victim warm and at rest.
- Get prompt medical attention.*

Ingestion:

- Get prompt medical attention.*
- Give several glasses of water to drink. Induce vomiting -- but ONLY if victim is conscious and alert.
- Never give anything by mouth to a person who is unconscious or convulsing.
- Maintain respiration.
- Prevent ingestion of oils or alcohol (could promote absorption).

* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

SECTION 6: FIRE PROCEDURES AND DATA

- If it can be done safely, remove camphor containers from fire area.
- Extinguishing media: carbon dioxide, water spray, dry chemical or alcohol type of foam.
- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.
- A water spray may be used to cool fire-exposed containers and disperse vapors.

THERMAL OXIDATIVE DEGRADATION PRODUCTS INCLUDE: Unidentified oxidation products and carbon monoxide.**FLASH POINT AND METHOD(S) (CC) ...** 150°F (65.6°C)**AUTOIGNITION TEMPERATURE ...** 871°F (466°C)**FLAMMABILITY LIMITS IN AIR (vol. %) ...**

Lower ... 0.6 Upper ... 3.5

SECTION 7: PHYSICAL DATA**BOILING POINT (@ 1 atm.) ...** 204°C (Sublimes 14%/hr. @ 80°C ; Steam Distills)**VAPOR PRESSURE (@ 41.5°C, mm Hg) ...** 1.0**VAPOR DENSITY (air = 1) ...** 5.2**SOLUBILITY IN WATER (@ 25°C) ...** 0.12 g/100g (Colloidal)**SPECIFIC GRAVITY (25°/4°C) ...** 0.992**MELTING POINT ...** <179°C**MOLECULAR WEIGHT ...** 152.2**EVAPORATION RATE (n-BuAc = 1) ...** <1**DATA SOURCES:** Genium Industrial MSDS# 531 (5/84) and references 1-12, 23, 27, 31, 34, 37, 38, 47-49, 501, 506, 509, 510, 511, 518.
(see glossary for titles)

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Approvals:

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Medical Review