



MATERIAL SAFETY DATA SHEETS

SECTION I

PRODUCT AND COMPANY IDENTIFICATION

Product: Menthol, DL

This MSDS is valid for all grades and catalog #'s

Synonyms: (1alpha,2beta,5alpha)-5-Methyl-2-methylethyl)cyclohexanol; (+-)-Menthol; 3-p-Menthol; 4-Isopropyl-1-methylcyclohexan-3-ol; Cyclohexanol, 5-methyl-2-(1methylethyl)-, (1-alpha,2-beta,5-alpha); dl-3-p-Menthol; Menthol, cis-1,3-trans-1,4-(+)-
Formula: C10-H20-O

Manufacturer: PHARMCO-AAPER
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Brookfield, Connecticut 06804, USA
Phone (203) 740-3471
Fax (203) 740-3481

1101 Isaac Shelby Drive
Shelbyville, KY 40065
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CHEMTREC 1-800-424-9300

SECTION II

COMPOSITION / INFORMATION ON INGREDIENTS

% by Material CAS # TLV/PE LC50/LD50
weight L

% by weight	Material	CAS #	TLV/PE L	LC50/LD50
100	Menthol, DL	89-78-1 (deleted CAS no. 15365-70-4); 1490-04 (CAS no. for Menthol)	Not available	ORAL (LD50): Acute: 2900 mg/kg [Rat]. 3100 mg/kg [Mouse]. DERMAL (LD50): Acute: >5000 mg/kg [Rabbit].

SECTION III

HAZARDS IDENTIFICATION

Potential Acute Health Effects: Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
Repeated or prolonged exposure is not known to aggravate medical condition.

SECTION IV

FIRST AID

Obtain medical attention for all cases of over-exposure.
Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.
Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.
Hazardous Skin Contact: Not available.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Hazardous Inhalation: Not available.
Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
Hazardous Ingestion: Not available.

SECTION V

FIRE FIGHTING MEASURES

Fire:
Flammability of the Product: May be combustible at high temperature.
Auto-Ignition temperature: 405°C (761°F)
Flash point: CLOSED CUP: 92°C (197.6°F).
Flammable limits: Not available.
Products of Combustion: These products are carbon oxides (CO, CO2).
Fire Hazards: Flammable in presence of open flames and sparks, of heat.
Explosion Hazards: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Extinguishing Media: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Information: When heated to decomposition it emits acrid smoke and irritating fumes. **COMBUSTIBLE.**

SECTION VI

SPILL/ACCIDENTAL RELEASE MEASURES

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill: If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

SECTION VII

HANDLING AND STORAGE

Precautions: Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

SECTION VIII

EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

SECTION IX

PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance: Solid. (Crystals solid.)

Molecular Weight: 156.3 g/mole

Odor: Peppermint like.

Taste: Peppermint

Color: White.

pH (1% Solution in Water): Not available.

Boiling Point: 212°C (413.6°F) - 216 C.

Melting Point: 33°C (91.4°F) - 43 C.

Critical Temperature: Not available.

Specific Gravity: 0.89 - 0.895 (Water = 1)

Vapor Pressure (mm Hg): Not applicable.

Vapor Density (Air=1): 5.38 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Water/Oil Dist. Coefficient: The product is more soluble in oil; $\log(\text{oil/water}) = 3.3$

Ionicity (in water): Not available.

Dispersion Properties: Not available.

Solubility: Soluble in diethyl ether, acetone. Very slightly soluble in cold water. Very soluble in alcohol, chloroform, petroleum ether. Freely soluble in glacial acetic acid, liquid petrolatum. Solubility in Water: 456 - 508 mg/l @ 25 deg. C.

SECTION X

STABILITY/REACTIVITY INFORMATION

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials

Incompatibilities: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Information: Incompatible with phenol, b-naphthol, resorcinol, thymol, potassium permanganate, chromium trioxide, pyrogallol, butylchloral hydrate, camphor, choral hydrate, exalgine, betanaphthol

SECTION XI

TOXICOLOGICAL INFORMATION

Routes of Entry: Absorbed through skin. Eye contact. Inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): 2900 mg/kg [Rat]. Acute dermal toxicity (LD50): >5000 mg/kg [Rabbit].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Information on Toxicity to Animals: Not available.

Special Information on Chronic Effects/Toxicity on Humans: May affect genetic material (mutagenic). Acute Potential Health Effects: Skin: May cause mild skin irritation. It can be absorbed through the skin. Eyes: Causes eye irritation with burning sensation without after effect. Inhalation: Inhalation of mist or vapor may cause mild respiratory tract irritation. May affect behavior/central nervous system (ataxia, confusion, irritability). Ingestion: It may affect behavior/central nervous system/peripheral nervous system (vertigo, muscle weakness hallucinations/distorted perceptions, ataxia, headache, convulsions, spastic paralysis). It may cause increased respiration.

SECTION XII

ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic
Special Information on Products of Biodegradation: Not available.

SECTION XIII

DISPOSAL CONSIDERATIONS

Waste Disposal: Recycle to process, if possible. Consult your local or regional authorities.

SECTION XIV

TRANSPORTATION INFORMATION

DOT Classification: DOT Not a DOT controlled material (United States).

UN: Not applicable.

Special Provisions for Transport: Not applicable.

SECTION XV

REGULATORY INFORMATION

Federal and State Regulations: Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are: **NONE**

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are: **NONE**

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

Other Classifications:

WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC): DSCL (EEC) R36- Irritating to eyes.

Protective Equipment: Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

References: Not available.

Other Special Considerations: Uses: Flavoring agent; inhalers; cosmetics

The information contained herein is based on data considered to be accurate based on the material as packaged. However, no warranty is expressed regarding the accuracy of these data or the results to be obtained from the use thereof. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It is the user's obligation to determine the conditions of safe use of the product. While this MSDS is based on technical data judged to be reliable,

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