An ISO 9001:2000 Certified Company

THE POWER OF THREE[3]

PHARMCO-AAPER

AND COMMERCIAL ALCOHOLS

Product Information (203) 740-3471 / Emergency Assistance CHEMTREC 1-800-424-9300

MATERIAL SAFETY DATA SHEETS

Manufacturer: PHARMCO-AAPER
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2,6-Dimethyl-4-heptanone

1. CHEMICAL PRODUCT IDENTIFICATION

Product Name: 2,6-Dimethyl-4-heptanone
Synonyms: Diisobutyl Ketone, Isovalerone, s-diisopropylacetone, sym-diisopropylacetone
Molecular Formula: $(CH_3)_2CHCH_2COCH_2CH(CH_3)_2$
Molecular Weight: 142.24

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
2,6-Dimethyl-4-heptanone	108-83-8	80.0

3. HAZARDS IDENTIFICATION

WARNING! FLAMMABLE LIQUID. MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY AND DIGESTIVE TRACT IRRITATION.

NFPA Hazard Ratings: Health - 1, Flammability - 2, Reactivity - 0

NOTE: NFPA ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Potential Health Effects

Eye: Vapors may cause eye irritation.

Skin: May cause skin irritation. May cause dermatitis.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation.

Inhalation: Inhalation of vapors causes irritation of eyes, throat, and skin. Vapors may cause dizziness or suffocation. Inhalation of high concentrations may cause narcotic effects.

Chronic: Prolonged or repeated contact may cause possible eczema.

4. FIRST AID MEASURES

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

Skin: Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Fire:
Autoignition Temperature: 345 deg C (653.00 deg F)
Flash Point: 49 deg C (120.20 deg F)
Explosion Limits, Lower: .80 vol % Upper: 7.10 vol %

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable Liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media: Use water spray to cool fire-exposed containers. Water may be ineffective. In case of fire, use water fog, dry chemical, carbon dioxide, or regular foam. Use agent most appropriate to extinguish fire. Do NOT use straight streams of water.

6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

7. HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Use only in a well ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits
ACGIH: 25 ppm ; 145 mg/m3
NIOSH: 25 ppm TWA; 150 mg/m3 TWA 500 ppm IDLH
OSHA - Final PELs: 50 ppm TWA; 290 mg/m3 TWA
OSHA Vacated PELs: 25 ppm TWA; 150 mg/m3 TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear liquid
Appearance: colourless
Odor: mild odor - peppermint odor
pH: Not available.
Vapor Pressure: 2.4 mbar @ 20 C
Vapor Density: 4.9
Evaporation Rate:
Viscosity: 1.05 MPA 20.00
Boiling Point: 169.0760.00 deg C

Freezing/Melting Point:-46 deg C
Decomposition Temperature:Not available.
Solubility: Immiscible.
Specific Gravity/Density:.8060g/cm3

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat, electrical sparks, exposure to flame, plastics.

Incompatibilities with Other Materials: Strong acids, alliphatic amines, strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

RTECS#:
CAS# 80-62-6: OZ5075000
LD50/LC50:
CAS# 80-62-6:
Inhalation, mouse: LC50 =18500 mg/m3/2H;
Inhalation, rat: LC50 =78000 mg/m3/4H;
Oral, mouse: LD50 = 3625 mg/kg;
Oral, rabbit: LD50 = 8700 mg/kg;
Oral, rat: LD50 = 7872 mg/kg;
Carcinogenicity:
CAS# 80-62-6:
ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Group 3 carcinogen
Epidemiology: No information available.
Teratogenicity: Embryo or Fetus: Death, inhalation-rat TCLo=109g/m3/54M.Specific Developmental Abnormalities: Musculoskeletal, inhalation-rat TCLo=109g/m3/17M.
Reproductive Effects: Fertility: Post-implantation mortality, inhalation-rat TCLo=4480mg/m3/2H.Materanl Effects: Menstrual cycle changes, inhalation-rat TCLo=54mg/m3/24H.
Neurotoxicity: No information available.
Mutagenicity: Please refer to RTECS# OZ5075000 for specific information.
Other Studies: None.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Environmental Fate: Degradation studies : Compound can be hydroxylated by Mortierella isabellina (Holland, H.L. J.Chem.Soc., Perkin Trans. 2 1990)

Physical/Chemical: Not available.

Other: Not available.

13. DISPOSAL CONSIDERATION

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration ofContaminants: None listed.
RCRA D-Series Chronic Toxicity ReferenceLevels: None listed.
RCRA F-Series: None listed.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

14. TRANSPORT INFORMATION

Domestic (Land, D.O.T.)
Proper Shipping Name: Diisobutyl Ketone
Hazard Class: 3
UN/NA: UN1157
Packing Group: III

International (Water, I.M.O.)
Proper Shipping Name: Diisobutyl Ketone
Hazard Class: 3.3
UN/NA: UN1157
Packing Group: III

International (Air, I.C.A.O.)
Proper Shipping Name: Diisobutyl Ketone
Hazard Class: 3
UN/NA: UN1157
Packing Group: III

15. REGULATORY INFORMATION

US FEDERAL

TSCA: CAS# 108-83-8 is listed on the TSCA inventory.
Health & Safety Reporting List: None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.
Section 12b: None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule: None of the chemicals in this material have a SNUR under TSCA.

SARA
Section 302 (RQ): None of the chemicals in this material have an RQ.
Section 302 (TPQ): None of the chemicals in this product have a TPQ.
SARA Codes: CAS # 108-83-8: acute, flammable, reactive.
Section 313: No chemicals are reportable under Section 313.

Clean Air Act: This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water Act: None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of thechemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 108-83-8 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level: None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XI
Risk Phrases: R 10 Flammable. R 37 Irritating to respiratory system.
Safety Phrases: S 16 Keep away from sources of ignition - No smoking. S 24 Avoid contact with skin. S 33 Take precautionary measures against static discharges. S 9 Keep container in a well-ventilated place.
WGK (Water Danger/Protection)
CAS# 108-83-8: 1
Canada
CAS# 108-83-8 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of B3, D2B.
CAS# 108-83-8 is not listed on Canada's Ingredient Disclosure List.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are: **NONE**

Exposure Limits
CAS# 108-83-8: OEL-AUSTRALIA:TWA 25 ppm (150 mg/m3) OEL-BELGIUM:TWA25 ppm (145 mg/m3) OEL-DENMARK:TWA 25 ppm (150 mg/m3) OEL-FINLAND:TWA 25 ppm (150 mg/m3);STEL 40 ppm (225 mg/m3) OEL-FRANCE:TWA 25 ppm (150 mg/m3) OEL-GERMANY:TWA 50 ppm (290 mg/m3) OEL-THE NETHERLANDS:TWA 25 ppm (150 mg/m3) OEL-THE PHILIPPINES:TWA 50 ppm (290 mg/m3) OEL-SWITZERLAND:TWA 25 ppm (150 mg/m3) OEL-TURKEY:TWA 50 ppm (290 mg/m3) OEL-UNITED KINGDOM:TWA 25 ppm (150 mg/m3) JANUAR 1993 OEL-UNITED KINGDOM:TWA 25 ppm (150 mg/m3) OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

16. OTHER INFORMATION

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.