

SAFETY DATA SHEET

Cyclohexanone, 5-methyl-2-(1-methylethylidene)-, (R)- (Natural)

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name Cyclohexanone, 5-methyl-2-(1-methylethylidene)-, (R)- (Natural)

Product number W1744N

Synonyms; trade names (5R)-5-Methyl-2-(1-methylethylidene)cyclohexanone (R)-(+)-Pulegone d-Pulegone Cyclohexanone, 5-

methyl-2-(1-methylethylidene)-, (5R)- Pulegone p-Menth-4(8)-en-3-one, (R)-(+)- p-Menth-4(8)-en-3-one

Cyclohexanone, 5-methyl-2-(1-methylethylidene)-, (.theta.)-

CAS number 89-82-7

Recommended use of the chemical and restrictions on use

Application Laboratory chemicals, Manufacture of substances.

Uses advised against Not labelled for flavor applications in the USA per CFR 172 & 177 (08 OCT 2018)

Details of the supplier of the safety data sheet

Supplier Synerzine

5340 Highway 42 Ellenwood, GA 30294 (404) 524-6744 info@synerzine.com

Contact Person James Elliott

Emergency telephone number

Emergency telephone INFOTRAC 1-800-535-5053 (Reference Contract # 102471)

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Flam. Liq. 4 - H227

Health hazards Acute Tox. 4 - H302 Skin Sens. 1 - H317 Carc. 2 - H351 Asp. Tox. 1 - H304

Environmental hazards Aquatic Acute 3 - H402 Aquatic Chronic 2 - H411

Label elements

Hazard symbols







Signal word

Danger

Hazard statements H227 Combustible liquid.

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction. H351 Suspected of causing cancer.

H402 Harmful to aquatic life.

H411 Toxic to aquatic life with long lasting effects. H304 May be fatal if swallowed and enters airways.

Precautionary statements P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.

P261 Avoid breathing vapor/ spray.

P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product.

P272 Contaminated work clothing must not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301+P310 If swallowed: Immediately call a poison center/ doctor.
P301+P312 If swallowed: Call a poison center/ doctor if you feel unwell.

P302+P352 If on skin: Wash with plenty of water.

P308+P313 If exposed or concerned: Get medical advice/ attention.

P321 Specific treatment (see medical advice on this label).

P330 Rinse mouth.

P331 Do NOT induce vomiting.

P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse.

P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

P391 Collect spillage.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P501 Dispose of contents/ container in accordance with national regulations.

Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

3. Composition/information on ingredients

Substances

Product name Cyclohexanone, 5-methyl-2-(1-methylethylidene)-, (R)- (Natural)

CAS number 89-82-7
Chemical formula C10H16O

Composition comments Named component present at ≤100%.

4. First-aid measures

Description of first aid measures

General information Get medical attention immediately. Show this Safety Data Sheet to the medical personnel.

Inhalation Remove affected person from source of contamination. Move affected person to fresh air and keep warm

and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure

breathing can take place.

Ingestion Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected

person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing

such as collar, tie or belt.

Skin Contact It is important to remove the substance from the skin immediately. In the event of any sensitization

symptoms developing, ensure further exposure is avoided. Remove contamination with soap and water or recognized skin cleansing agent. Get medical attention if symptoms are severe or persist after washing.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart.

2/10

Continue to rinse for at least 10 minutes.

Protection of first aiders

First aid personnel should wear appropriate protective equipment during any rescue. If it is suspected that volatile contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

General information See Section 11 for additional information on health hazards. The severity of the symptoms described will

vary dependent on the concentration and the length of exposure.

Inhalation Prolonged inhalation of high concentrations may damage respiratory system. Prolonged or repeated

exposure may cause the following adverse effects: Suspected of causing cancer.

Ingestion May cause sensitization or allergic reactions in sensitive individuals. May cause discomfort if swallowed.

Stomach pain. Nausea, vomiting. Aspiration hazard if swallowed. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis. Prolonged or repeated exposure may cause the following

adverse effects: Suspected of causing cancer.

Skin contact May cause skin sensitization or allergic reactions in sensitive individuals. Prolonged contact may cause

dryness of the skin. Prolonged or repeated exposure may cause the following adverse effects: Suspected

of causing cancer.

Eye contact May cause temporary eye irritation.

Indication of immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically. May cause sensitization or allergic reactions in sensitive individuals.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water

fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards Containers can burst violently or explode when heated, due to excessive pressure build-up. This product

is toxic.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Toxic gases or

vapors.

Advice for firefighters

Protective actions during

firefighting

Avoid breathing fire gases or vapors. Evacuate area. Keep upwind to avoid inhalation of gases, vapors, fumes and smoke. Ventilate closed spaces before entering them. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution

occurs, notify appropriate authorities.

Special protective equipment for

firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary

and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material. Avoid contact with skin and eyes.

Environmental precautions

Environmental precautions

Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment. Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up

Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Provide adequate ventilation. Approach the spillage from upwind. Small Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Large Spillages: If leakage cannot be stopped, evacuate area. Flush spilled material into an effluent treatment plant, or proceed as follows. Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labeled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spilled material. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dangerous for the environment. Do not empty into drains. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Reference to other sections

For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions

Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid the formation of mists. Suspected of causing cancer. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational

hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

Conditions for safe storage, including any incompatibilities

Storage precautions

Store away from incompatible materials (see Section 10). Store in accordance with local regulations. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Utilize retaining walls to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.

Storage class

Miscellaneous hazardous material storage.

Specific end uses(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Ingredient comments

No exposure limits known for ingredient(s).

Exposure controls

Protective equipment







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Appropriate engineering controls

Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with OSHA 1910.133. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

Hygiene measures

Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.

Environmental exposure controls

Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance Clear liquid.

Color Colorless to Light Yellow

Odor Berry Odor Camphor Similar To Peppermint Sulfurous

Odor threshold Not available Not available. Melting point Not available.

224°C Initial boiling point and range

Flash point 82°C/180°F Method: Closed cup.

Evaporation rate Not available. Upper/lower flammability or

explosive limits

Not available

Vapor pressure Not available.

Vapor density Not available. Relative density Not available. Solubility(ies) Not available. Not available. Partition coefficient Auto-ignition temperature Not available. **Decomposition Temperature** Not available. Viscosity Not available. Not available. Explosive properties Oxidizing properties Not available. Molecular weight 152.23 g/mol

10. Stability and reactivity

Reactivity See the other subsections of this section for further details.

Stability Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed

storage conditions.

Possibility of hazardous reactions No potentially hazardous reactions known.

Conditions to avoid There are no known conditions that are likely to result in a hazardous situation.

Materials to avoid No specific material or group of materials is likely to react with the product to produce a hazardous

situation.

470.0

Hazardous decomposition

products

Does not decompose when used and stored as recommended. Thermal decomposition or combustion

products may include the following substances: Toxic gases or vapors.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Summary Harmful if swallowed.

Acute toxicity oral (LD $_{50}$ mg/kg) 470.0 Species Rat

Acute toxicity - dermal

ATE oral (mg/kg)

Summary Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Summary Based on available data the classification criteria are not met.

Skin corrosion/irritation

Summary Based on available data the classification criteria are not met.

Serious eye damage/irritation

Summary Based on available data the classification criteria are not met.

Respiratory sensitization

Summary Based on available data the classification criteria are not met.

Skin sensitization

Summary May cause an allergic skin reaction.

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Germ cell mutagenicity

Summary Based on available data the classification criteria are not met.

Carcinogenicity

Summary Suspected of causing cancer.

IARC carcinogenicity IARC Group 2B Possibly carcinogenic to humans.

Reproductive toxicity

Summary Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

Summary Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

Summary Based on available data the classification criteria are not met.

Aspiration hazard

Summary May be fatal if swallowed and enters airways. Pneumonia may be the result if vomited material containing

solvents reaches the lungs.

General information May cause cancer after repeated exposure. Risk of cancer depends on duration and level of exposure.

The severity of the symptoms described will vary dependent on the concentration and the length of

exposure.

Inhalation Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion May cause sensitization or allergic reactions in sensitive individuals. May cause discomfort if swallowed.

Stomach pain. Nausea, vomiting. Aspiration hazard if swallowed. Entry into the lungs following ingestion

or vomiting may cause chemical pneumonitis.

Skin Contact May cause skin sensitization or allergic reactions in sensitive individuals. Prolonged contact may cause

dryness of the skin.

Eye contact May cause temporary eye irritation.

Route of exposure Ingestion Inhalation Skin and/or eye contact

Target Organs No specific target organs known.

Medical considerations Skin disorders and allergies.

12. Ecological information

Acute aquatic toxicity

Summary Based on available data the classification criteria are not met.

Acute toxicity - aquatic

invertebrates

EC50, 48 hours: 24 mg/l, Daphnia magna

Chronic aquatic toxicity

Summary Toxic to aquatic life with long lasting effects.

Persistence and degradability

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient Not available.

Mobility in soil

Mobility No data available.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information

The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods

Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

General For limited quantity packaging/limited load information, consult the relevant modal documentation using

the data shown in this section.

UN Number

UN No. (TDG) 3082
UN No. (IMDG) 3082
UN No. (ICAO) 3082
UN No. (DOT) NA1993

UN proper shipping name

Proper shipping name (TDG) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyclohexanone, 5-methyl-2-(1-

methylethylidene)-, (R)-)

Proper shipping name (IMDG) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyclohexanone, 5-methyl-2-(1-

methylethylidene)-, (R)-)

Proper shipping name (ICAO) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyclohexanone, 5-methyl-2-(1-

methylethylidene)-, (R)-)

Proper shipping name (DOT) COMBUSTIBLE LIQUID, N.O.S. (Cyclohexanone, 5-methyl-2-(1-methylethylidene)-, (R)-)

Transport hazard class(es)

DOT hazard class None
DOT hazard label None

TDG class 9

TDG label(s) 9
IMDG Class 9

ICAO class/division 9

Transport labels



Packing group

TDG Packing Group III
IMDG packing group IIII

ICAO packing group III

DOT packing group ///

Environmental hazards

Environmentally Hazardous Substance



Special precautions for user

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

EmS F-A, S-F

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

Regulatory References OSHA Hazard Communication Standard 29 CFR §1910.1200

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Carcinogen.

Inventories

Canada - DSL/NDSL

DSL

US - TSCA Present.

16. Other information

Abbreviations and acronyms used *TDG: The transport of dangerous goods act* in the safety data sheet

IATA: International air transport association.

ICAO: Technical instructions for the safe transport of dangerous goods by air.

IMDG: International maritime dangerous goods.

CAS: Chemical abstracts service. ATE: Acute toxicity estimate.

LC₅o: Lethal concentration to 50 % of a test population.

LD₅₀: Lethal dose to 50% of a test population (median lethal dose).

EC₅o: 50% of maximal effective concentration.

PBT: Persistent, bioaccumulative and toxic substance. vPvB: Very persistent and very bioaccumulative.

Classification abbreviations and

acronyms

Acute Tox. = Acute toxicity
Asp. Tox. = Aspiration hazard
Carc. = Carcinogenicity

Skin Sens. = Skin sensitisation
Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Training advice Read and follow manufacturer's recommendations. Only trained personnel should use this material.

Revision comments NOTE: Lines within the margin indicate significant changes from the previous revision.

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Revision 3

Supersedes date 6/1/2018

SDS No. 1268

Hazard statements in full H227 Combustible liquid.

H302 Harmful if swallowed.

H402 Harmful to aquatic life.

H304 May be fatal if swallowed and enters airways.

H317 May cause an allergic skin reaction. H351 Suspected of causing cancer.

H411 Toxic to aquatic life with long lasting effects.

End of Safety Data Sheet

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.