

SAFETY DATA SHEET

2-Hepten-4-one, 5-methyl-

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

SECTION 1: Identification of the s	SECTION 1: Identification of the substance/mixture and of the company/undertaking		
1.1. Product identifier			
Product name	2-Hepten-4-one, 5-methyl-		
Product number	W1333		
Synonyms; trade names	Hept-2-en-4-one, 5-methyl- 5-Methyl-2-hepten-4-one 5-Methylhept-2-en-4-one		
CAS number	81925-81-7		
EC number	617-270-6		
1.2. Relevant identified uses of th	e substance or mixture and uses advised against		
Identified uses	Laboratory chemicals, Manufacture of substances.		
Uses advised against	No specific uses advised against are identified.		
1.3. Details of the supplier of the	safety data sheet		
Supplier	Synerzine 5340 Highway 42 Ellenwood, GA 30294 United States +1 404-524-6744 info@synerzine.com		
Contact person	James Elliott		
1.4. Emergency telephone number			
Emergency telephone	INFOTRAC +1 352-323-3500 (Reference Contract # 102471)		
SECTION 2: Hazards identification	n		
2.1. Classification of the substance	e or mixture		
Classification (EC 1272/2008)	Flow Lin 2 H226		
Physical hazards Health hazards	Flam. Liq. 3 - H226 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317		
Environmental hazards	Not Classified		
	NOL Classifieu		
2.2. Label elements EC number	617-270-6		
	017-270-0		
Hazard pictograms			
Signal word	Warning		

Hazard statements	H226 Flammable liquid and vapour. H315 Causes skin irritation. H319 Causes serious eye irritation. H317 May cause an allergic skin reaction.
Precautionary statements	 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof electrical equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P261 Avoid breathing vapour/ spray. P264 Wash contaminated skin thoroughly after handling. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352 IF ON SKIN: Wash with plenty of water. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321 Specific treatment (see medical advice on this label). P332+P313 If skin irritation occurs: Get medical advice/ attention. P333+P313 If skin irritation persists: 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. P403+P235 Store in a well-ventilated place. Keep cool. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients	
3.1. Substances	
Product name	2-Hepten-4-one, 5-methyl-
CAS number	81925-81-7
EC number	617-270-6
Chemical formula	C8H14O

SECTION 4: First aid measures

4.1. 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 sensitisation symptoms developing, ensure further exposure is avoided. Remove contamination with soap and water or recognised 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. 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.
4.2. Most important symptoms and	d 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.
Ingestion	May cause sensitisation or allergic reactions in sensitive individuals. May cause irritation.
Skin contact	May cause skin sensitisation or allergic reactions in sensitive individuals. Redness. Irritating to skin.
Eye contact	Irritating to eyes.
4.3. Indication of any immediate m	nedical attention and special treatment needed
Notes for the doctor	Treat symptomatically. May cause sensitisation or allergic reactions in sensitive individuals.
SECTION 5: Firefighting measure	S
5.1. Extinguishing media	
Suitable extinguishing media	The product is 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.
5.2. Special hazards arising from	the substance or mixture
Specific hazards	Containers can burst violently or explode when heated, due to excessive pressure build-up. Flammable liquid and vapour. Vapours may be ignited by a spark, a hot surface or an ember. Vapours may form explosive mixtures with air. Fire-water run-off in sewers may create fire or explosion hazard.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.
5.3. Advice for firefighters	
Protective actions during firefighting	Avoid breathing fire gases or vapours. Evacuate area. 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 vapours and protect men stopping the leak. 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. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and
	gloves) will provide a basic level of protection for chemical incidents.

6.1. 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. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions

Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

6.3. 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. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. 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 labelled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spillage. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

6.4. Reference to other sections

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.

SECTION 7: Handling and storage

7.1. 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 minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. In use may form flammable/explosive vapour-air mixture. Vapours may accumulate on the floor and in low-lying areas. Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. 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. 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.	
7.2. Conditions for safe storage, in	ncluding any incompatibilities	
Storage precautions	Store away from incompatible materials (see Section 10). Store in accordance with local regulations. Eliminate all sources of ignition. Take precautionary measures against static discharges. Earth container and transfer equipment to eliminate sparks from static electricity. Keep away from oxidising materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Bund storage facilities 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	Flammable liquid storage.	
7.3. Specific end use(s)		
Specific end use(s)	The identified uses for this product are detailed in Section 1.2.	
SECTION 8: Exposure controls/Personal protection		
8.1. Control parameters		
Ingredient comments	No exposure limits known for ingredient(s).	

8.2. Exposure controls

Protective equipment



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 minimise 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 minimise exposure. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilating equipment.
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 European Standard EN166. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
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 European Standard EN374. 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 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.
Environmental exposure controls	Keep container tightly sealed when not in use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties		
Appearance	Clear liquid.	
Colour	Pale Yellow	
Odour	Filbert Nut Aroma Hazel Nut	
Odour threshold	Not available.	
рН	Not available.	
Melting point	Not available.	
Initial boiling point and range	21°C @ 0.15 mm Hg	
Flash point	62°C / 143°F Method: Closed cup.	

Evaporation rate	Not available.	
Upper/lower flammability or explosive limits	Not available.	
Vapour pressure	Not available.	
Vapour density	xxx.x - (Air - 1.0)	
Relative density	Not available.	
Solubility(ies)	Not available.	
Partition coefficient	Not available.	
Auto-ignition temperature	Not available.	
Decomposition Temperature	Not available.	
Viscosity	Not available.	
Explosive properties	Not available.	
Oxidising properties	Not available.	
9.2. Other information		
Molecular weight	xxx.xx g/mol	
SECTION 10: Stability and reactivity		
10.1. Reactivity		
Reactivity	See the other subsections of this section for further details.	
10.2. Chemical stability		
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.	
10.3. Possibility of hazardous reactions		
Possibility of hazardous reactions	The following materials may react strongly with the product: Oxidising agents.	
10.4. Conditions to avoid		
Conditions to avoid	Avoid heat, flames and other sources of ignition. Containers can burst violently or explode when heated, due to excessive pressure build-up. Static electricity and formation of sparks must be prevented. Do not pressurise, cut, weld, drill, grind or otherwise expose containers to heat or sources of ignition.	
10.5. Incompatible materials		
Materials to avoid	Oxidising materials. Acids - oxidising.	
10.6. Hazardous decomposition pr	roducts	
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.	
SECTION 11: Toxicological information		
11.1. Information on toxicological effects		

11.1. Information on toxicological e	iffects
Acute toxicity - oral	
Summary	Based on available data the classification criteria are not met.
Acute toxicity - dermal	
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	Causes skin irritation.	
Serious eye damage/irritation Summary	Causes serious eye irritation.	
Respiratory sensitisation Summary	Based on available data the classification criteria are not met.	
Skin sensitisation Summary	May cause an allergic skin reaction.	
Germ cell mutagenicity Summary	Based on available data the classification criteria are not met.	
Carcinogenicity Summary	Based on available data the classification criteria are not met.	
Reproductive toxicity Summary	Based on available data the classification criteria are not met.	
Specific target organ toxicity - sing Summary	gle exposure Based on available data the classification criteria are not met.	
Specific target organ toxicity - rep	eated exposure	
Summary	Based on available data the classification criteria are not met.	
Aspiration hazard Summary	Based on available data the classification criteria are not met.	
General information	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 sensitisation or allergic reactions in sensitive individuals. May cause irritation.	
Skin contact	May cause skin sensitisation or allergic reactions in sensitive individuals. Redness. Irritating to skin.	
Eye contact	Irritating to eyes.	
Route of exposure	Ingestion Inhalation Skin and/or eye contact	
Target organs	No specific target organs known.	
Medical considerations	Skin disorders and allergies.	
SECTION 12: Ecological information		
Ecotoxicity	Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous	

	effects on the environment.		
12.1. Toxicity			
Acute aquatic toxicity			
Summary	Based on available data the classification criteria are not met.		
Chronic aquatic toxicity			
Summary	Based on available data the classification criteria are not met.		
12.2. Persistence and degradability			
Persistence and degradability	The degradability of the product is not known.		
12.3. Bioaccumulative potential			
Bioaccumulative potential	No data available on bioaccumulation.		
Partition coefficient	Not available.		

ADN class

3

2-Hepten-4-one, 5-methyl-

12.4. Mobility in soil Mobility	No data available.
12.5. Results of PBT and vPvB as	
12.6. Other adverse effects	
Other adverse effects	None known.
SECTION 13: Disposal considerat	ions
13.1. Waste treatment methods	
General information	The generation of waste should be minimised 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, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible. Vapour from residual product may create a highly flammable or explosive atmosphere inside the container. Containers should be thoroughly emptied before disposal because of the risk of an explosion. Do not cut or weld used containers unless they have been thoroughly cleaned internally.
SECTION 14: Transport information	on
General	For limited quantity packaging/limited load information, consult the relevant modal documentation using the data shown in this section.
14.1. UN number	
UN No. (ADR/RID)	1224
UN No. (IMDG)	1224
UN No. (ICAO)	1224
UN No. (ADN)	1224
14.2. UN proper shipping name	
Proper shipping name (ADR/RID)	KETONES, LIQUID, N.O.S. (2-Hepten-4-one, 5-methyl-)
Proper shipping name (IMDG)	KETONES, LIQUID, N.O.S. (2-Hepten-4-one, 5-methyl-)
Proper shipping name (ICAO)	KETONES, LIQUID, N.O.S. (2-Hepten-4-one, 5-methyl-)
Proper shipping name (ADN)	KETONES, LIQUID, N.O.S. (2-Hepten-4-one, 5-methyl-)
14.3. Transport hazard class(es)	
ADR/RID class	3
ADR/RID classification code	F1
ADR/RID label	3
IMDG class	3

Transport labels



14.4. Packing group

ADR/RID packing group	<i>III</i>
IMDG packing group	<i>III</i>
ICAO packing group	<i>III</i>
ADN packing group	<i>III</i>

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant *No.*

14.6. 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-E, S-D
ADR transport category	3
Emergency Action Code	•3Y
Hazard Identification Number (ADR/RID)	30
Tunnel restriction code	(D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations	Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

Inventories Canada - DSL/NDSL DSL

US - TSCA Present.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. 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. LC₅₀: Lethal Concentration to 50 % of a test population. LD₅₀: Lethal Dose to 50% of a test population. PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.
Classification abbreviations and acronyms	Flam. Liq. = Flammable liquid Eye Irrit. = Eye irritation Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation
Classification procedures according to Regulation (EC) 1272/2008	Skin Irrit. 2 - H315: Eye Irrit. 2 - H319: Skin Sens. 1 - H317: : Expert judgement. Flam. Liq. 3 - H226: : Expert judgement.
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.
Revision date	26/02/2019
Revision	2
Supersedes date	27/05/2015
SDS number	748
Hazard statements in full	H226 Flammable liquid and vapour. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation.

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.