

Safety Data Sheet
acc. to OSHA HCS (29 CFR § 1910.1200)

Printing date 01/16/2024

Reviewed on 01/16/2024

1 Identification

- **Product identifier**
- **Trade name: Ketones (I Type) Natural**
- **Product number:** 1661
- **CAS Number:** 112-12-9/821-55-6/110-43-0
- **EINECS Number:** 203-937-5/212-480-0/203-767-1
- **Application of the substance / the mixture** Flavoring Ingredients

· **Details of the supplier of the safety data sheet**
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- **Manufacturer/Supplier:**
Advanced Biotech
10 Taft Road
Totowa, NJ 07512 USA
- **Information department:**
Product Safety Department
productsafety@adv-bio.com
- **Emergency telephone number:**
Infotrac: 1-800-535-5053 (Domestic) & 1-352-323-3500 (International)
Email: responders@infotrac.net & During normal business hours: 1-973-339-6242

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 3

H226 Flammable liquid and vapor.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure 3 H336 May cause drowsiness or dizziness.

- **GHS label elements**

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.

The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**



GHS02 GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Heptan-2-one

· **Hazard statements**

H226 Flammable liquid and vapor.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.

P405 Store locked up.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 2

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *2

Fire = 2

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 821-55-6	2-Nonanone	25-50%
EINECS: 212-480-0	⚠ Skin Irritation 2, H315; Eye Irritation 2A, H319; Flammable Liquids 4, H227	

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CAS: 110-43-0 EINECS: 203-767-1	Heptan-2-one  Flammable Liquids 3, H226;  Acute Toxicity - Oral 4, H302; Acute Toxicity - Inhalation 4, H332; Specific Target Organ Toxicity - Single Exposure 3, H336	25-50%
CAS: 143-07-7 EINECS: 205-582-1	Lauric acid  Eye Damage 1, H318	≥1-≤2.5%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.
- **Additional information**
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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· **Protective Action Criteria for Chemicals**

· **PAC-1:**

CAS: 821-55-6	2-Nonanone	0.51 ppm
CAS: 110-43-0	Heptan-2-one	150 ppm
CAS: 112-12-9	2-Undecanone	0.91 ppm
CAS: 544-63-8	Myristic acid	0.14 mg/m ³
CAS: 111-14-8	Heptanoic acid	3.9 ppm
CAS: 124-07-2	Caprylic acid	30 mg/m ³
CAS: 112-05-0	Nonanoic acid	13 mg/m ³
CAS: 107-87-9	Pentan-2-one	150 ppm
CAS: 123-92-2	Isopentyl acetate	100 ppm
CAS: 141-78-6	Ethyl acetate	1,200 ppm
CAS: 64-19-7	Acetic acid	5 ppm

· **PAC-2:**

CAS: 821-55-6	2-Nonanone	5.6 ppm
CAS: 110-43-0	Heptan-2-one	670 ppm
CAS: 112-12-9	2-Undecanone	10 ppm
CAS: 544-63-8	Myristic acid	1.6 mg/m ³
CAS: 111-14-8	Heptanoic acid	43 ppm
CAS: 124-07-2	Caprylic acid	330 mg/m ³
CAS: 112-05-0	Nonanoic acid	140 mg/m ³
CAS: 107-87-9	Pentan-2-one	830 ppm
CAS: 123-92-2	Isopentyl acetate	500 ppm
CAS: 141-78-6	Ethyl acetate	1,700 ppm
CAS: 64-19-7	Acetic acid	35 ppm

· **PAC-3:**

CAS: 821-55-6	2-Nonanone	34 ppm
CAS: 110-43-0	Heptan-2-one	4000* ppm
CAS: 112-12-9	2-Undecanone	60 ppm
CAS: 544-63-8	Myristic acid	9.3 mg/m ³
CAS: 111-14-8	Heptanoic acid	260 ppm
CAS: 124-07-2	Caprylic acid	2,000 mg/m ³
CAS: 112-05-0	Nonanoic acid	840 mg/m ³
CAS: 107-87-9	Pentan-2-one	5000* ppm
CAS: 123-92-2	Isopentyl acetate	3000* ppm
CAS: 141-78-6	Ethyl acetate	10000** ppm
CAS: 64-19-7	Acetic acid	250 ppm

7 Handling and storage

· **Handling:**

· **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

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- Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
No special requirements.
Please refer to the product specification and/or Certificate of Analysis for product storage requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

CAS: 110-43-0 Heptan-2-one

PEL	Long-term value: 465 mg/m ³ , 100 ppm
REL	Long-term value: 465 mg/m ³ , 100 ppm
TLV	Long-term value: 50 ppm

- **Additional information:** The lists that were valid during the creation were used as a basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material should be based on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several

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substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be determined by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Liquid
· Color:	According to product specification
· Odor:	According to product specification
· Odor threshold:	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	Undetermined.

· **Flash point:** 55.1 °C (131.2 °F)

· **Flammability (solid, gaseous):** Flammable.

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Product is not selfigniting.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

· Lower:	1 Vol %
· Upper:	5.5 Vol %

· **Vapor pressure at 20 °C (68 °F):** 3.5 hPa (2.6 mm Hg)

· **Vapor pressure at 50 °C (122 °F):** 22 hPa (16.5 mm Hg)

· Density at 20 °C (68 °F):	0.82-0.85 g/cm ³ (6.8429-7.09325 lbs/gal)
· Specific Gravity	0.820 – 0.850 @ 20 °C (33.5 – 33.5 @ 68 °F)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.

· **Solubility in / Miscibility with**

· **Water:** Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

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· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	29.4 %
VOC content:	29.38 %
	240.9-249.7 g/l / 2.01-2.08 lb/gal
Solids content:	0.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	5,468 mg/kg
Inhalative	LC50/4 h	37.6 mg/l (ATE)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Water hazard class 2 (Self-assessment): hazardous for water
 Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	UN1993
· DOT, IMDG, IATA	
· UN proper shipping name	Flammable liquids, n.o.s. (n-Amyl methyl ketone, 2-Nonanone)
· DOT	
· IMDG	FLAMMABLE LIQUID, N.O.S. (n-AMYL METHYL KETONE, 2-Tridecanone), MARINE POLLUTANT
· IATA	FLAMMABLE LIQUID, N.O.S. (n-AMYL METHYL KETONE)

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<ul style="list-style-type: none"> · Transport hazard class(es) 	
<ul style="list-style-type: none"> · DOT 	
	
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids 3
<hr/>	
<ul style="list-style-type: none"> · IMDG 	
 	
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids 3
<hr/>	
<ul style="list-style-type: none"> · IATA 	
	
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids 3
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	
III	
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: · Special marking (ADR): 	
Symbol (fish and tree) Symbol (fish and tree)	
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category 	
Warning: Flammable liquids 30 F-E, S-E A	
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	
Not applicable.	
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	
On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L	
<hr/>	
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) 	
5L	

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· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (N-AMYL METHYL KETONE), 3, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.

The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**



GHS02 GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Heptan-2-one

· **Hazard statements**

H226 Flammable liquid and vapor.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.

P405 Store locked up.

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H226 Flammable liquid and vapor.

H227 Combustible liquid.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Product Safety Department

· **Contact:**

Product Safety Department

productsafety@adv-bio.com

· **Date of preparation / last revision** 01/16/2024

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flammable Liquids 3: Flammable liquids – Category 3
Flammable Liquids 4: Flammable liquids – Category 4
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Skin Irritation 2: Skin corrosion/irritation – Category 2
Eye Damage 1: Serious eye damage/eye irritation – Category 1
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

US