

Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name: Acetaldehyde 50% D'Limonene Natural**
- **Product number: 1320**
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Flavoring Ingredients
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Advanced Biotech
10 Taft Road
Totowa, NJ 07512 USA
- **Further information obtainable from:**
Product Safety Department
productsafety@adv-bio.com
- **1.4 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

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.



GHS08 health hazard

Muta. 2 H341 Suspected of causing genetic defects.
Carc. 1B H350 May cause cancer.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

(Contd. on page 2)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 1)

- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS02 GHS07 GHS08 GHS09

- **Signal word** Danger
- **Hazard-determining components of labelling:**
Acetaldehyde
Limonene
- **Hazard statements**
H224 Extremely flammable liquid and vapour.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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 [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.

P405 Store locked up.

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

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 75-07-0 EINECS: 200-836-8	Acetaldehyde	⚠ Acute Tox. 4, H302 ATE: LD50 oral: 700 mg/kg LD50 dermal: 3,540 mg/kg	≥25-≤100%
-----------------------------------	--------------	---	-----------

(Contd. on page 3)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 2)

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
Supply fresh air and be sure to call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 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.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **6.3 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.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.

(Contd. on page 4)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

See Section 13 for disposal information.

(Contd. of page 3)

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 Ensure good ventilation/exhaustion at the workplace.
 Open and handle receptacle with care.
 Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
 Keep respiratory protective device available.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 Keep container tightly sealed.
 Do not seal receptacle gas tight.
 Store in cool, dry conditions in well sealed receptacles.
 Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

CAS: 75-07-0 Acetaldehyde

OEL Short-term value: 45 mg/m ³ , 25 ppm

- **Additional information:** The lists valid during the making were used as a basis.
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see section 7.
- **Individual protection measures, such as 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.
 Store protective clothing separately.
 Avoid contact with the eyes.
 Avoid contact with the eyes and skin.
- **Respiratory protection:**
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Hand protection**



Protective gloves

(Contd. on page 5)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 4)

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 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/face protection**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

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

· **General Information**

· **Physical state**

Liquid

· **Colour:**

According to product specification

· **Odour:**

According to product specification

· **Odour threshold:**

Not determined.

· **Melting point/freezing point:**

Undetermined.

· **Boiling point or initial boiling point and boiling range**

21 °C

· **Flammability**

Not applicable.

· **Lower and upper explosion limit**

· **Lower:**

0.7 Vol %

· **Upper:**

57 Vol %

· **Flash point:**

1.7 °C

· **Auto-ignition temperature:**

140 °C

· **Decomposition temperature:**

Not determined.

· **pH at 20 °C**

5

· **Viscosity:**

· **Kinematic viscosity**

Not determined.

· **Dynamic:**

Not determined.

· **Solubility**

· **water:**

Not miscible or difficult to mix.

· **Partition coefficient n-octanol/water (log value)**

Not determined.

· **Vapour pressure at 20 °C:**

1 hPa

· **Density and/or relative density**

· **Density:**

Not determined.

· **Relative density**

Not determined.

(Contd. on page 6)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 5)

<ul style="list-style-type: none"> · Refractive Index · Vapour density 	<p>Not determined.</p>
<ul style="list-style-type: none"> · 9.2 Other information · Appearance: · Form: · Important information on protection of health and environment, and on safety. · Ignition temperature: · Explosive properties: · Solvent content: · Organic solvents: · VOC (EC) · Change in condition · Evaporation rate 	<p>Liquid</p> <p>Product is not selfigniting.</p> <p>Product is not explosive. However, formation of explosive air/vapour mixtures are possible.</p> <p>90-110 %</p> <p>90-110 %</p> <p>Not determined.</p>
<ul style="list-style-type: none"> · Information with regard to physical hazard classes · Explosives · Flammable gases · Aerosols · Oxidising gases · Gases under pressure · Flammable liquids · Flammable solids · Self-reactive substances and mixtures · Pyrophoric liquids · Pyrophoric solids · Self-heating substances and mixtures · Substances and mixtures, which emit flammable gases in contact with water · Oxidising liquids · Oxidising solids · Organic peroxides · Corrosive to metals · Desensitised explosives 	<p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Extremely flammable liquid and vapour.</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p>

SECTION 10: Stability and reactivity

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

(Contd. on page 7)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 6)

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Harmful if swallowed.

- **LD/LC50 values relevant for classification:**

ATE (Acute Toxicity Estimates)

Oral	LD50	1,202-1,469 mg/kg (rat)
------	------	-------------------------

CAS: 75-07-0 Acetaldehyde

Oral	LD50	700 mg/kg (ATE) 661 mg/kg (rat)
Dermal	LD50	3,540 mg/kg (ATE)
Inhalative	LC50/4 h	37 mg/l (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Respiratory or skin sensitisation** May cause an allergic skin reaction.
- **Germ cell mutagenicity** Suspected of causing genetic defects.
- **Carcinogenicity** May cause cancer.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause respiratory irritation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

- **Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Remark:**
Very toxic for fish
Harmful to fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Very toxic for aquatic organisms

(Contd. on page 8)

Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural





Harmful to aquatic organisms

(Contd. of page 7)

SECTION 13: Disposal considerations

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

SECTION 14: Transport information

· 14.1 UN number or ID number	
· ADR, IMDG, IATA	UN1993
· 14.2 UN proper shipping name	
· ADR	1993 FLAMMABLE LIQUID, N.O.S. (ACETALDEHYDE), ENVIRONMENTALLY HAZARDOUS
· IMDG	FLAMMABLE LIQUID, N.O.S. (ACETALDEHYDE, DIPENTENE), MARINE POLLUTANT
· IATA	FLAMMABLE LIQUID, N.O.S. (ACETALDEHYDE)
· 14.3 Transport hazard class(es)	
· ADR	
	
· Class	3 (F1) Flammable liquids.
· Label	3
· IMDG	
 	
· Class	3 Flammable liquids.
· Label	3
· IATA	
	
· Class	3 Flammable liquids.
· Label	3

(Contd. on page 9)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 8)

<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	<p>I</p>
<ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: 	<p>Product contains environmentally hazardous substances: Limonene</p> <p>No Symbol (fish and tree)</p>
<ul style="list-style-type: none"> · 14.6 Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category 	<p>Warning: Flammable liquids.</p> <p>33 F-E,<u>S</u>-E E</p>
<ul style="list-style-type: none"> · 14.7 Maritime transport in bulk according to IMO instruments 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR · Limited quantities (LQ) · Excepted quantities (EQ) · Transport category · Tunnel restriction code 	<p>0 Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml</p> <p>1 D/E</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>0 Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml</p>
<ul style="list-style-type: none"> · UN "Model Regulation": 	<p>UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETALDEHYDE), 3, I, ENVIRONMENTALLY HAZARDOUS</p>

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



- **Signal word** Danger
- **Hazard-determining components of labelling:**
Acetaldehyde
Limonene

(Contd. on page 10)

Safety data sheet
 according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 9)

· **Hazard statements**

- H224 Extremely flammable liquid and vapour.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause an allergic skin reaction.
- H341 Suspected of causing genetic defects.
- H350 May cause cancer.
- H335 May cause respiratory irritation.
- H400 Very toxic to aquatic life.
- H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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 [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.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Directive 2012/18/EU**

- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

- P5a FLAMMABLE LIQUIDS
- E1 Hazardous to the Aquatic Environment

- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 10 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 28

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **REGULATION (EU) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

(Contd. on page 11)

Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

Printing date 24.01.2025

Version number 1

Revision: 24.01.2025

Trade name: Acetaldehyde 50% D'Limonene Natural

(Contd. of page 10)

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

SECTION 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**

H302 Harmful if swallowed.

· **Department issuing SDS:** Product safety department

· **Contact:**

Product Safety Department
productsafety@adv-bio.com

· **Date of previous version:** 09.01.2025

· **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

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

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

ATE: Acute toxicity estimate values

Flam. Liq. 1: Flammable liquids – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

Carc. 1B: Carcinogenicity – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3