



# SAFETY DATA SHEET



**2-Ethylhexanal**  
**10030**

Version / Revision  
Supersedes Version

5  
4.02\*\*\*

Revision Date  
Issuing date

25-Jun-2021  
25-Jun-2021

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

### 1.1. Product identifier

Identification of the substance/preparation

**2-Ethylhexanal**

CAS-No  
EC No.

123-05-7  
204-596-5

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Transported isolated intermediate (1907/2006)

Uses advised against

None

### 1.3. Details of the supplier of the safety data sheet

Company/Undertaking  
Identification

**OQ Chemicals GmbH**  
Rheinpromenade 4A  
D-40789 Monheim  
Germany

Product Information

Product Stewardship  
FAX: +49 (0)208 693 2053  
email: sc.psq@oq.com

### 1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK)  
available 24/7

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Flammable liquid Category 3, H226  
Skin sensitization Category 1B, H317  
Reproductive toxicity Category 2, H361

#### Additional information

For full text of Hazard- and EU Hazard-statements see SECTION 16.

### 2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

#### Hazard pictograms



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## Signal word

## Warning

### Hazard statements

H226: Flammable liquid and vapour.  
H317: May cause an allergic skin reaction.  
H361: Suspected of damaging fertility or the unborn child.

### 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P261: Avoid breathing gas/mist/vapours.  
P281: Use personal protective equipment as required  
P363: Wash contaminated clothing before reuse.  
P403 + P235: Store in a well ventilated place. Keep cool.

## 2.3. Other hazards

Vapours may form explosive mixture with air  
Components of the product may be absorbed into the body by inhalation and ingestion

**PBT and vPvB assessment** Not required

## SECTION 3: Composition / information on ingredients

### 3.1. Substances

Component	CAS-No	1272/2008/EC	Concentration (%)
2-Ethylhexanal	123-05-7	Flam. Liq. 3; H226 Skin Sens. 1B; H317 Repr. 2; H361	> 98,5

For full text of Hazard- and EU Hazard-statements see SECTION 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

#### Skin

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

#### Eyes



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Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Obtain medical attention.

### **Ingestion**

Do not induce vomiting without medical advice. Call a physician immediately.

## **4.2. Most important symptoms and effects, both acute and delayed**

### **Main symptoms**

shortness of breath, abdominal pain, vomiting, nausea, cough.

### **Special hazard**

Lung oedema, Lung irritation, Dermatitis.

## **4.3. Indication of any immediate medical attention and special treatment needed**

### **General advice**

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically. In case of lung irritation, first treatment with cortisone spray.

## **SECTION 5: Firefighting measures**

### **5.1. Extinguishing media**

#### **Suitable extinguishing media**

alcohol-resistant foam, dry chemical, carbon dioxide (CO<sub>2</sub>), water spray

#### **Unsuitable Extinguishing Media**

Do not use a solid water stream as it may scatter and spread fire.

### **5.2. Special hazards arising from the substance or mixture**

Under conditions giving incomplete combustion, hazardous gases produced may consist of:

carbon monoxide (CO)

carbon dioxide (CO<sub>2</sub>)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Vapours are heavier than air and may spread along floors

Vapours may form explosive mixture with air

### **5.3. Advice for firefighters**

#### **Special protective equipment for firefighters**

Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

#### **Precautions for firefighting**

Cool containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**



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For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.  
For emergency responders: Personal protection see section 8.

## 6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

## 6.3. Methods and material for containment and cleaning up

### Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

### Methods for cleaning up

Soak up with inert absorbent material. DO NOT use combustible materials such as sawdust. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

## 6.4. Reference to other sections

For personal protective equipment see section 8.

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms. Refill and handle product only in closed system.

#### Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

#### Advice on the protection of the environment

See Section 8: Environmental exposure controls.

#### Incompatible products

acids and bases  
amines  
oxidizing agents  
oxygen  
reducing agents

### 7.2. Conditions for safe storage, including any incompatibilities

#### Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapours may form explosive mixture with air. The product will oxidize in air and release heat. The pressure in sealed containers can increase under the influence of heat.



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## Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Handle under nitrogen, protect from moisture. Oxidization creates acids and peroxides, that may lead to corrosive damages in storage and handling equipment.

## Suitable material

stainless steel, aluminium

## Unsuitable material

mild steel, iron

## Temperature class

T4

## 7.3. Specific end use(s)

Transported isolated intermediate (1907/2006)

## SECTION 8: Exposure controls / personal protection

### 8.1. Control parameters

#### Exposure limits European Union

No exposure limits established

#### Exposure limits UK

No exposure limits established.

#### DNEL & PNEC

This substance is registered as intermediate under strictly controlled conditions.

#### 2-Ethylhexanal, CAS: 123-05-7

##### Workers

DN(M)EL - long-term exposure - systemic effects - Inhalation

1,53 mg/m<sup>3</sup>

DN(M)EL - long-term exposure - systemic effects - Dermal

3,62 mg/kg bw/day

##### General population

DN(M)EL - long-term exposure - systemic effects - Inhalation

0,64 mg/m<sup>3</sup>

DN(M)EL - long-term exposure - systemic effects - Dermal

0,37 mg/kg bw/day

DN(M)EL - long-term exposure - systemic effects - Oral

0,18 mg/kg bw/day

### 8.2. Exposure controls

#### Special adaptations (REACH)

The substance has been registered as an transported isolated intermediate and must be handled throughout its life cycle under strictly controlled conditions in accordance with Article 18.4, REACH.



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ácidos carboxílicos

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## Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

## Personal protective equipment

### General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

### Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

### Eye protection

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Equipment should conform to EN 166

### Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

<b>Suitable material</b>	nitrile rubber
<b>Evaluation</b>	according to EN 374: level 4
<b>Glove thickness</b>	approx 0,55 mm
<b>Break through time</b>	approx 80 min
<b>Suitable material</b>	polyvinylchloride
<b>Evaluation</b>	Information derived from practical experience
<b>Glove thickness</b>	approx 0.8 mm

### Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

### Respiratory protection

Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.

### Environmental exposure controls

Use product only in closed system. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

### Additional advice

Further details on substance data can be found in the registration dossier under the following link:  
<http://echa.europa.eu/information-on-chemicals/registered-substances>.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties



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Appearance	liquid
Colour	colourless
Odour	strong
Odour threshold	No data available
pH	No data available
Melting point/range	< -90 °C
Method	DIN ISO 3016
Boiling point/range	152 °C @ 1013 hPa
Method	OECD 103
Flash point	47 °C @ 1013 hPa
Method	ISO 2719
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	0,9 Vol %
Upper explosion limit	7,2 Vol %

## Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
2	0,2	0,002	18,5	65,3	
2,8	0,28	0,003	23,4	74,1	

Vapour density 4,4 (Air = 1) @ 20 °C (68 °F)

## Relative density

Values	@ °C	@ °F	Method
0,819	20	68	DIN 51757

Solubility 0,8 g/l @ 20 °C, in water, OECD 105

log Pow 3,6 @ 25 °C (77 °F), OECD 117

Autoignition temperature 180 °C @ 985 hPa

Method DIN 51794

Decomposition temperature No data available

Viscosity 0,951 mPa\*s @ 20 °C

Method dynamic, DIN 51562

Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

## 9.2. Other information

Molecular weight 128,22

Molecular formula C8 H16 O

Refractive index 1,416 @ 20 °C

Surface tension 47,1 mN/m (0,73 g/l @ 20°C (68°F)), OECD 115

## SECTION 10: Stability and Reactivity

### 10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

### 10.2. Chemical stability

Stable under recommended storage conditions.



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## 10.3. Possibility of hazardous reactions

Hazardous reactions occur in the presence of acids, base or oxidizing agents. This reaction is exothermic and may create heat. When finely distributed, self-ignition is possible. May form explosive peroxides.

## 10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

## 10.5. Incompatible materials

bases, amines, acids, oxidizing agents, oxygen, reducing agents.

## 10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

**Likely routes of exposure** Ingestion, Inhalation, Eye contact, Skin contact

<b>Acute toxicity</b>				
<b>2-Ethylhexanal (123-05-7)</b>				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	2600 mg/kg	rat, male/female	OECD 401
Dermal	LD50	> 16440 mg/kg	rat, male/female	
Inhalative	LC50	> 6,83 mg/l (4h)	rat, male/female	OECD 403

#### **2-Ethylhexanal, CAS: 123-05-7**

##### **Assessment**

Based on available data, the classification criteria are not met for:

Acute oral toxicity

Acute dermal toxicity

Acute inhalation toxicity

##### **Irritation and corrosion**

<b>2-Ethylhexanal (123-05-7)</b>				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	irritating	OECD 404	
Eyes	rabbit	No eye irritation	OECD 405	

#### **2-Ethylhexanal, CAS: 123-05-7**

##### **Assessment**

The available data lead to the classification given in section 2

For respiratory irritation, no data are available

##### **Sensitization**

<b>2-Ethylhexanal (123-05-7)</b>				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig female	sensitizing	OECD 406	read across





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## 2-Ethylhexanal, CAS: 123-05-7

### Assessment

The available data lead to a classification as skin sensitizer (see section 2)

For respiratory sensitization, no data are available

### Subacute, subchronic and prolonged toxicity

#### 2-Ethylhexanal (123-05-7)

Type	Dose	Species	Method	
Subacute toxicity	NOAEL: 0,54 mg/l	rat, male/female	OECD 412	Inhalation

## 2-Ethylhexanal, CAS: 123-05-7

### Assessment

Based on available data, the classification criteria are not met for:

STOT RE

### Carcinogenicity, Mutagenicity, Reproductive toxicity

#### 2-Ethylhexanal (123-05-7)

Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	Ames test	
Mutagenicity		mouse male/female	negative	OECD 474	Oral
Reproductive toxicity	NOAEL 300 mg/kg/d	rat, parental		Oral	read across
Reproductive toxicity	NOAEL 100 mg/kg/d	rat, 1. Generation, male/female		Oral	read across
Developmental Toxicity	NOAEL 300,9 mg/kg/d	rat		OECD 414, Oral	Developmental toxicity Maternal toxicity

## 2-Ethylhexanal, CAS: 123-05-7

### CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

### Evaluation

In vitro tests did not show mutagenic effects

No developmental effects in the absence of maternal toxicity

## 2-Ethylhexanal, CAS: 123-05-7

### Main symptoms

shortness of breath, abdominal pain, vomiting, nausea, cough.

### Other adverse effects

Components of the product may be absorbed into the body by inhalation and ingestion.

### Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:

<http://echa.europa.eu/information-on-chemicals/registered-substances>.

## SECTION 12: Ecological information

### 12.1. Toxicity



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<b>Acute aquatic toxicity</b>			
<b>2-Ethylhexanal (123-05-7)</b>			
Species	Exposure time	Dose	Method
Oncorhynchus mykiss (rainbow trout)	96h	LC50: 5,5 mg/l	OECD 203
Activated sludge (domestic)	30 min	EC50: 73,6 - 507,6 mg/l	ISO 8192
Daphnia magna (Water flea)	48h	EC50: 4,7 mg/l	OECD 202
Pseudokirchneriella subcapitata	72h	EC50: 6,9 mg/l (Growth rate)	OECD 201

## 12.2. Persistence and degradability

**2-Ethylhexanal, CAS: 123-05-7**

### Biodegradation

71,8 % (28 d), activated sludge (domestic), aerobic, OECD 301 F.

<b>Abiotic Degradation</b>		
<b>2-Ethylhexanal (123-05-7)</b>		
Type	Result	Method
Hydrolysis	No data available	
Photolysis	No data available	

## 12.3. Bioaccumulative potential

<b>2-Ethylhexanal (123-05-7)</b>		
Type	Result	Method
log Pow	3,6 @ 25 °C (77 °F)	OECD 107
BCF	No data available	

## 12.4. Mobility in soil

<b>2-Ethylhexanal (123-05-7)</b>		
Type	Result	Method
Surface tension	47,1 mN/m (0,73 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	no data available	
Distribution to environmental compartments	no data available	

## 12.5. Results of PBT and vPvB assessment

**2-Ethylhexanal, CAS: 123-05-7**

### PBT and vPvB assessment

Not required

## 12.6. Other adverse effects

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No data available

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**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Product Information**

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Hazardous waste according to European Waste Catalogue (EWC)

**Uncleaned empty packaging**

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

**SECTION 14: Transport information****ADR/RID**

<b>14.1. UN number</b>	UN 1191
<b>14.2. UN proper shipping name</b>	Octyl aldehydes
<b>14.3. Transport hazard class(es)</b>	3
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	no
<b>14.6. Special precautions for user</b>	
ADR Tunnel restriction code	(D/E)
Classification Code	F1
Hazard Number	30

**ADN**

ADN Container

<b>14.1. UN number</b>	UN 1191
<b>14.2. UN proper shipping name</b>	Octyl aldehydes
<b>14.3. Transport hazard class(es)</b>	3
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	no
<b>14.6. Special precautions for user</b>	
Classification Code	F1
Hazard Number	30

**ADN**

ADN Tanker

<b>14.1. UN number</b>	UN 1191
<b>14.2. UN proper shipping name</b>	Octyl aldehydes
<b>14.3. Transport hazard class(es)</b>	3
Subsidiary Risk	F
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	no



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## 14.6. Special precautions for user

Classification Code F1

## ICAO-TI / IATA-DGR

14.1. UN number UN 1191  
14.2. UN proper shipping name Octyl aldehydes  
14.3. Transport hazard class(es) 3  
14.4. Packing group III  
14.5. Environmental hazards no  
14.6. Special precautions for user no data available

## IMDG

14.1. UN number UN 1191  
14.2. UN proper shipping name Octyl aldehydes  
14.3. Transport hazard class(es) 3  
14.4. Packing group III  
14.5. Environmental hazards no  
14.6. Special precautions for user  
EmS F-E, S-D  
14.7. Transport in bulk according to Annex  
II of MARPOL and the IBC Code  
Product name Octyl aldehydes  
Ship type 3  
Pollution category Y

## SECTION 15: Regulatory information

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

#### Regulation 1272/2008, Annex VI

not listed

#### DI 2012/18/EU (Seveso III)

Category Annex I, part 1:  
P5a - c; depending on conditions

#### DI 1999/13/EC (VOC Guideline)

Component	Status
2-Ethylhexanal CAS: 123-05-7	regulated

## International Inventories

2-Ethylhexanal, CAS: 123-05-7



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AICS (AU)  
DSL (CA)  
IECSC (CN)  
EC-No. 2045965 (EU)  
ENCS (2)-494 (JP)  
ISHL (2)-494 (JP)  
ISHL 2-(8)-34 (JP)  
INSQ (MX)  
PICCS (PH)  
TSCA (US)  
NZIoC-NZ May be used as single component chemical  
TCSI (TW)

## National regulatory information Great Britain

### Releases to air (Pollution Inventory Substances)

not subject

### Releases to water (Pollution Inventory Substances)

not subject

### Releases to sewer (Pollution Inventory Substances)

not subject

### The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758 \*\*\*

Component	Status
2-Ethylhexanal CAS: 123-05-7	The substance will not be pre-registered.***

For details and further information please refer to the original regulation

## 15.2. Chemical safety assessment

The Chemical Safety Report (CSR) is not required.

## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3

H226: Flammable liquid and vapour.

H317: May cause an allergic skin reaction.

H361: Suspected of damaging fertility or the unborn child.

### Abbreviations

A table of terms and abbreviations can be found under the following link:

[http://echa.europa.eu/documents/10162/13632/information\\_requirements\\_r20\\_en.pdf](http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf)

### Training advice

For effective first-aid, special training / education is needed.

### Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.



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### Further information for the safety data sheet

Changes against the previous version are marked by \*\*\*. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OQ homepage ([www.chemicals.oq.com](http://www.chemicals.oq.com)).

The annex is not required because the substance is registered as an intermediate under REACH

### Disclaimer

**For industrial use only.** The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OQ makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

**End of Safety Data Sheet**