

SAFETY DATA SHEET



2-Ethylhexanoic acid
10040

Version / Revision 5.01
Supersedes Version 5.00***

Revision Date 25-Jan-2022
Issuing date 25-Jan-2022

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

1.1. Product identifier

Identification of the substance/preparation

2-Ethylhexanoic acid

CAS-No 149-57-5
EC No. 205-743-6
Registration number (REACH) 01-2119488942-23

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

Identified uses	Intermediate Formulation laboratory chemicals Functional Fluids
Uses advised against	Consumer uses To avoid exposure of consumers

1.3. Details of the supplier of the safety data sheet

Company/Undertaking Identification	OQ Chemicals GmbH Rheinpromenade 4A D-40789 Monheim Germany
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Product Information	Product Stewardship FAX: +49 (0)208 693 2053 email: sc.psq@oq.com
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1.4. Emergency telephone number

Emergency telephone number +65 3158 1198 (available 24/7)
000800 100 7479 (for domestic shipments only)

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)

Reproductive toxicity Category 2, H361d

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).

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Hazard pictograms



Signal word

Warning

Hazard statements

H361d: Suspected of damaging the unborn child.

Precautionary statements

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P308 + P313: IF exposed or concerned: Get medical advice/ attention.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local regulation.

2.3. Other hazards

Components of the product may be absorbed into the body by inhalation, ingestion and through the skin

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	REACH-No	1272/2008/EC	Concentration (%)
2-Ethylhexanoic acid	149-57-5	01-2119488942-23	Repr. 2; H361d	> 99,50

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.

Eyes

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

Skin

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

Ingestion

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

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

Main symptoms

None known.

Special hazard

Lung irritation, Lung oedema, Kidney disorders, respiratory disorder.

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. If ingested, flush stomach and compensate acidosis.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

foam, dry chemical, carbon dioxide (CO₂), 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 (CO₂)

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

Vapours are heavier than air and may spread along floors

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

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

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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. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. 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.

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

bases
amines
strong oxidizing 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.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Recommended storage temperature: $\leq 38\text{ }^{\circ}\text{C}$ / $\leq 100\text{ }^{\circ}\text{F}$.

Temperature class

T2

7.3. Specific end use(s)

Intermediate

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Formulation
laboratory chemicals
Functional Fluids

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits India

No exposure limits established.

8.2. Exposure controls

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.

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.

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.

Suitable material	nitrile rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,55 mm
Break through time	> 480 min
Suitable material	polyvinylchloride
Evaluation	Information derived from practical experience
Glove thickness	approx 0.8 mm

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

Skin and body protection

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

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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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	colourless
Odour	mild
Odour threshold	No data available
pH	3,75 (1 g/l in water @ 25 °C (77 °F)) DIN 19268
Melting point/range	-83 °C (Pour point)
Boiling point/range	228 °C @ 1013 hPa
Flash point	116 °C @ 1013 hPa
Method	closed cup, DIN EN ISO 2719***
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	0,8 Vol %
Upper explosion limit	6,7 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
0,04	0,004	< 0,001	20	68	
4,3	0,43	0,004	50	122	

Vapour density 5,0 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,9067	20	68	DIN 51757

Solubility 1,5 g/l @ 20 °C, in water, OECD 105
log Pow 2,7 @25 °C (77 °F), pH 4,7 OECD 107
3,0 @25°C (77 °F), pH 3,0 OECD 117***

Autoignition temperature 395 °C @ 1014 hPa***
Method DIN 51794

Decomposition temperature No data available

Viscosity 7,625 mPa*s @ 20 °C
Method dynamic, ASTM D445

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

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

9.2. Other information

Molecular weight	144,21
Molecular formula	C8 H16 O2
log Koc	≤ 2,15 at ambient temperature OECD 106***
Dissociation constant	pKa 4,9 @ 21 °C (69 °F) OECD 112***
Refractive index	1,425 @ 20 °C

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Surface tension 43,2 mN/m @ 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.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

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, strong oxidizing 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

Acute toxicity				
2-Ethylhexanoic acid (149-57-5)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	2043 mg/kg	rat, female	OECD 401
Dermal	LD50	> 2000 mg/kg	rat, male/female	OECD 402
Inhalative	LC0	0,11 mg/l (8 h)	rat, male/female***	OECD 403

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Assessment

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

Acute oral toxicity

Acute dermal toxicity

Acute inhalation toxicity

Irritation and corrosion				
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Target Organ Effects	Species	Result	Method	
Skin	rabbit	Mild skin irritation	OECD 404	4h***

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Eyes	rabbit	No eye irritation***	OECD 405	24h
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Assessment

Based on available data, the classification criteria are not met for:
skin irritation/corrosion
eye irritation/corrosion
For respiratory irritation, no data are available

Sensitization

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Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	2 %, aqueous solution***

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Assessment

Based on available data, the classification criteria are not met for:
Skin sensitization
For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity

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Type	Dose	Species	Method	
Subchronic toxicity	NOAEL: ~ 200 mg/kg/d (90d)	mouse, male/female	EPA OTS 795.2600	Oral
Subchronic toxicity	NOAEL: ~300 mg/kg/d (90d)	rat, male/female	EPA OTS 795.2600	Oral***
Subacute toxicity***	NOAEL: 200 mg/kg/d (15d)***	rat, male/female***	OECD 407***	Oral***

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Assessment

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

Carcinogenicity, Mutagenicity, Reproductive toxicity

2-Ethylhexanoic acid (149-57-5)

Type	Dose	Species	Evaluation	Method	
Developmental Toxicity	NOAEL 25 mg/kg/d	rabbit		EPA OTS 798.4900	Maternal toxicity
Developmental Toxicity	NOAEL 250 mg/kg/d	rabbit		EPA OTS 798.4900	Developmental toxicity
Developmental Toxicity	NOAEL >250 mg/kg/d	rat		EPA OTS 798.4900	Maternal toxicity
Developmental Toxicity	NOAEL 100 mg/kg/d	rat		EPA OTS 798.4900	Developmental toxicity
Reproductive toxicity	NOAEL 250 mg/kg/d	rat, parental		Oral OECD 443	
Reproductive toxicity	NOAEL 800 mg/kg/d	rat, 1. Generation, male/female		Oral OECD 443	
Mutagenicity		CHO (Chinese	negative	OECD 476	In vitro study

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		Hamster Ovary) cells		(Mammalian Gene Mutation)	
Mutagenicity		mouse lymphoma cells	negative	OECD 476 (Mammalian Gene Mutation)	
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		rat lymphocytes	negative	OECD 473 (Chromosomal Aberration)	In vitro study
Mutagenicity		mouse male/female	negative	OECD 474	Oral micronucleus test

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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

Directive 1272/2008/EC, Annex VI: Repr. 2

Evaluation

In vitro tests showed mutagenic effects

Did not show carcinogenic effects in animal experiments

No indication for a carcinogenic potential

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Target Organ Systemic Toxicant - Single exposure

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

STOT SE

Target Organ Systemic Toxicant - Repeated exposure

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

STOT RE

Aspiration toxicity

no data available

Other adverse effects

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

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

Acute aquatic toxicity			
2-Ethylhexanoic acid (149-57-5)			
Species	Exposure time	Dose	Method
Oryzias latipes (Medaka)	96h	LC50: > 100 mg/l	OECD 203 read across***
Daphnia magna (Water flea)	48h	EC50: 85,4 mg/l	79/831/EEC.C2
Desmodesmus subspicatus	72h	EC50: 49,3 mg/l (Growth rate)***	DIN 38412, part 9
Pseudomonas putida	17 h	EC50: 112,1 mg/l (Growth inhibition)	DIN 38412, part 8
Oncorhynchus mykiss (rainbow)	96h***	LC50: 180 mg/l***	OECD 203***

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trout)***			
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Long term toxicity

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Type	Species	Dose	Method	
Reproductive toxicity	Daphnia magna (Water flea)	LC50: 25 mg/l/21d***	OECD 211	
Reproductive toxicity***	Daphnia magna (Water flea)***	NOEC: 18 mg/l***	OECD 211***	read across***
Aquatic toxicity***	Desmodesmus subspicatus***	EC10: 32 mg/l (72 h)***	DIN 38412 / part 9***	
Aquatic toxicity***	Pseudokirchneriella subcapitata***	NOEC: 130 mg/l (3d) Growth rate***	OECD 201***	read across***

12.2. Persistence and degradability

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Biodegradation

99 % (28 d), Sewage, domestic, aerobic, OECD 301 E.

Abiotic Degradation

2-Ethylhexanoic acid (149-57-5)

Type	Result	Method
Photolysis	Half-life (DT50): 47,1 h	calculated
Hydrolysis	not expected	

12.3. Bioaccumulative potential

2-Ethylhexanoic acid (149-57-5)

Type	Result	Method
log Pow	3,0 @ 25 °C (77 °F)***	measured, OECD 107

12.4. Mobility in soil

2-Ethylhexanoic acid (149-57-5)

Type	Result	Method
Adsorption/Desorption	Koc: ≤ 140,87 at ambient temperature***	OECD 106
Surface tension	Surface activity not expected 43,2 mN/m @ 20 °C (68 °F)***	OECD 115***
Distribution to environmental compartments	Air: 0,93 Soil: 3,64 Water: 91,7 Sediment: 11,2***	Calculation according Mackay, Level I***

12.5. Results of PBT and vPvB assessment

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PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

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12.6. Other adverse effects

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No data available

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

Section 14.1 - 14.6

ICAO-TI / IATA-DGR

Not restricted

IMDG

Not restricted

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

Product name	2-Ethylhexanoic acid
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

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Classification	Repr. 2; H361d
Hazard pictograms	GHS08 Health hazard
Signal word	Warning
Hazard statements	H361d

International Inventories

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AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2057436 (EU)
ENCS (2)-608 (JP)
ISHL (2)-608 (JP)
KECI KE-13740 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

National regulatory information India

Hazardous Chemicals, Schedule 2: Threshold Quantities at an Isolated Storage
not listed

Hazardous Chemicals, Schedule 3: Threshold Quantities in an Industrial Installation
not listed

For details and further information please refer to the original regulation.

SECTION 16: Other information

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

H361d: Suspected of damaging 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

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.

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).

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