SAFETY DATA SHEET

2-Ethylhexanol
10050

Version / Revision	3.01	**Revision Date**	03-Feb-2022
Supersedes Version	3.00***	**Issuing date**	03-Feb-2022

SECTION 1: Identification

1.1. Product identifier

Identification of the substance/preparation **2-Ethylhexanol**

CAS-No 104-76-7

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

Use of the Substance / Preparation Intermediate
solvent
Uses advised against None

1.3. Details of the supplier of the safety data sheet

Supplier

OQ Chemicals Corporation
15375 Memorial Drive
West Memorial Place I
Suite 300
Houston, TX 77079
USA
Phone +1 346 378 7300

Product Information

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

1.4. Emergency telephone number

Emergency telephone number NCEC +1 202 464 2554
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified in accordance with paragraph (d) of §1910.1200 (GHS-US classification).

Acute inhalation toxicity Category 4, H332
Skin corrosion/irritation Category 2, H315
Serious eye damage/eye irritation Category 2A, H319
Target Organ Systemic Toxicant - Single exposure Category 3, H335
Flammable liquid Category 4, H227

Environmental hazard Aquatic Acute 3; H402

OSHA Specified Hazards Not applicable.

2.2. Label elements

Labeling according to §1910.1200 (GHS-US labeling).

Hazard symbol(s)

Signal word **Warning**

Hazard statements
H227: Combustible liquid
H332: Harmful if inhaled.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H402: Harmful to aquatic life

Precautionary statements

Prevention
P210: Keep away from flames and hot surfaces. - No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing gas/mist/vapours.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves/eye protection/face protection.

Response
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311: Call a POISON CENTER/doctor.
P362 + P364: Take off contaminated clothing and wash it before reuse.***

Storage
P403 + P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.

Disposal
P501: Dispose of contents/container in accordance with local regulation.

2.3. Other hazards

Vapour/air-mixtures are explosive at intense warming
Components of the product may be absorbed into the body by inhalation, ingestion and through the skin

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
2-Ethylhexan-1-ol	104-76-7	> 99,5

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

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

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

Main symptoms
cough, headache, weakness, dizziness, gastrointestinal discomfort, nausea, unconsciousness, shortness of breath.

Special hazard
Lung irritation.

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, irrigate the stomach using activated charcoal.

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
Vapour/air-mixtures are explosive at intense warming

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

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
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. Vapour/air-mixtures are explosive at intense warming.

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Keep at temperatures between 0 and 49 °C (32 and 120 °F).

Suitable material
stainless steel

Unsuitable material
None known

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

No exposure limits established.
Note

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

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.

Individual protection measures, such as 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.

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

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

Respiratory protection
Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (vapor or mist). Equipment should conform to NIOSH.***

Environmental exposure controls
If possible use in closed systems. 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 @ 20 °C (68 °F)
Colour	colourless
Odour	slight
Odour threshold	0,08 ppm
pH	5,8 (0,9 g/l in water @ 20 °C (68 °F)) OECD 105***
Melting point/range	-128,2 °F (-89 °C) (Pour point)
Method	DIN ISO 3016
Boiling point/range	363,2 °F (184 °C) @ 1 atm (101,3 kPa)
Method	OECD 103
Flash point	170,6 °F (77 °C) @ 1 atm (101,3 kPa)***
Method	ISO 2719
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	0,79 Vol %
Upper explosion limit	12,7 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
0,93	0,093	0,00091	20	68	OECD 104
3,8	0,38	0,003750	50	122	OECD 104

Vapour density 4,5 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,832	20	68	DIN 51757

Solubility	0,9 g/l @ 68 °F (20 °C), in water, OECD 105
log Pow	2,9 (measured) OECD 117
Autoignition temperature	536 °F (280 °C) @ 1017 hPa***
Method	DIN 51794
Decomposition temperature	No data available
Viscosity	9,845 mPa*s @ 68 °F (20 °C)
Method	DIN 51562, dynamic***

9.2. Other information

Molecular weight	130,23
Molecular formula	C8 H18 O
log Koc	2,12 calculated***
Dissociation constant	pKa 15,75 @ 25 °C (77 °F) (calculated)
Oxidizing properties	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties***
Refractive Index	1,431 @ 68 °F (20 °C)
Explosive properties	Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

Surface tension 47 mN/m (0,81 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.

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

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

2-Ethylhexan-1-ol, CAS: 104-76-7
Main symptoms
cough, headache, weakness, dizziness, gastrointestinal discomfort, nausea, unconsciousness, shortness of breath.
Target Organ Systemic Toxicant - Single exposure
respiratory system
The available data lead to the classification given in section 2
Target Organ Systemic Toxicant - Repeated exposure
Based on available data, the classification criteria are not met for:
STOT RE

Acute toxicity				
2-Ethylhexan-1-ol (104-76-7)				
Routes of Exposure	Endpoint	Values	Species	Method

Oral	LD50	~2047 mg/kg	rat, male	OECD 401
Dermal	LD0	> 3000 mg/kg	rat, male/female	OECD 402
Inhalative	LC50	> 0,89 - < 5,3 mg/l (4h)	rat, male/female	OECD 403

2-Ethylhexan-1-ol, CAS: 104-76-7
Assessment
The available data lead to the classification given in section 2

Irritation and corrosion				
2-Ethylhexan-1-ol (104-76-7)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	severe irritation	OECD 404	4h
Eyes	rabbit	irritating	OECD 405	
Respiratory tract	human	irritating		

2-Ethylhexan-1-ol, CAS: 104-76-7
Assessment
The available data lead to the classification given in section 2

Sensitization				
2-Ethylhexan-1-ol (104-76-7)				
Target Organ Effects	Species	Evaluation	Method	
Skin	Human experience	not sensitizing	Maximisation Test	

2-Ethylhexan-1-ol, CAS: 104-76-7
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				
2-Ethylhexan-1-ol (104-76-7)				
Type	Dose	Species	Method	
Subchronic toxicity	NOEL: 125 mg/kg/d (90d)	rat, male/female	OECD 408	Oral
Subchronic toxicity	NOAEL: 250 mg/kg/d (90d)	rat, male/female	OECD 408	Oral
Subchronic toxicity	NOEL: 125 mg/kg/d (90d)	mouse, male/female	OECD 408	Oral
Subchronic toxicity	NOAEL: 250 mg/kg/d (90d)	mouse, male/female	OECD 408	Oral
Subchronic toxicity	NOAEC: 120 ppm (90 d)	rat, male/female	OECD 413	Inhalation

2-Ethylhexan-1-ol, CAS: 104-76-7
Assessment
Based on available data, the classification criteria are not met for:

STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
2-Ethylhexan-1-ol (104-76-7)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		Escherichia coli	negative	OECD 472	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	OECD 473 (Chromosomal Aberration)	In vitro study
Mutagenicity		mouse lymphoma cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study
Carcinogenicity	NOAEL 500 mg/kg/d	rat, male/female	negative	OECD 451, Oral	
Carcinogenicity	NOAEL 750 mg/kg/d	mouse male/female***	negative***	OECD 451, Oral	
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study
Mutagenicity		mouse***	negative	OECD 474***	in vivo
Reproductive toxicity	NOAEL 10000 mg/kg/d	rat, parental***		OECD 416 Oral***	Fertility read across
Reproductive toxicity	NOAEL 3000 mg/kg/d	rat, parental***		OECD 416 Oral***	Maternal toxicity read across
Reproductive toxicity	NOAEL 3000 mg/kg/d	rat***		OECD 416 Oral***	Developmental toxicity read across
Developmental Toxicity	NOAEL 191 mg/kg/d***	mouse***	negative	OECD 414, Oral***	Maternal toxicity, Developmental toxicity, Teratogenicity***
Developmental Toxicity***	NOAEC: 850 mg/m³***	rat***		OECD 414, Inhalative***	Maternal toxicity, Developmental toxicity, Teratogenicity***
Developmental Toxicity***	NOAEL 840 mg/kg/d***	rat***		OECD 414, Dermal***	Maternal toxicity***
Developmental Toxicity***	NOAEL 2520 mg/kg/d***	rat***		OECD 414, Dermal***	Developmental toxicity, Teratogenicity***

2-Ethylhexan-1-ol, CAS: 104-76-7

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

Based on available data, the classification criteria are not met for:
Mutagenicity
Developmental toxicity
Reproductive toxicity
Carcinogenicity***

2-Ethylhexan-1-ol, CAS: 104-76-7
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-Ethylhexan-1-ol (104-76-7)			
Species	Exposure time	Dose	Method
Leuciscus idus (Golden orfe)	96h	LC50: 17,1 mg/l	84/449/EEC C.1
Pimephales promelas (fathead minnow)	96h	LC50: 28,2 mg/l	OECD 203
Daphnia magna (Water flea)	48h	EC50: 39 mg/l	84/449/EEC C.2
Desmodesmus subspicatus	72h	EC50: 11,5 mg/l (Biomass)	88/302/EEC C.3
Desmodesmus subspicatus	72h	EC50: 16,6 mg/l (Growth rate)	88/302/EEC C.3
Activated sludge (domestic)	24h	NOEC: > 300 mg/l	ETAD Fermentation tube method

Long term toxicity				
2-Ethylhexan-1-ol (104-76-7)				
Type	Species	Dose	Method	
Aquatic toxicity	Scenedesmus subspicatus	EC10: 3,2 mg/l (72 h) Biomass***	88/302/EEC C.3	
Aquatic toxicity***	Scenedesmus subspicatus***	EC10: 5,3 mg/l (72 h) Growth rate***	88/302/EEC C.3***	

12.2. Persistence and degradability

2-Ethylhexan-1-ol, CAS: 104-76-7
Biodegradation
100 % (14 d), activated sludge, non-adapted, aerobic, OECD 301 C,
97 % (7 d), activated sludge, industrial, non-adapted, aerobic, OECD 302 B (Zahn-Wellens Test).***

Abiotic Degradation		
2-Ethylhexan-1-ol (104-76-7)		
Type	Result	Method
Hydrolysis	No data available	
Photolysis	Rate constant: 1,13 x 10^(-11) cm^3/(molecule x s) Atmospheric lifetime: 24,6 h***	measured***

12.3. Bioaccumulative potential

2-Ethylhexan-1-ol (104-76-7)		
Type	Result	Method
log Pow	2,9 @ 25 °C (77 °F)***	measured, OECD 117
BCF	38	calculated

12.4. Mobility in soil

2-Ethylhexan-1-ol (104-76-7)		
Type	Result	Method
Adsorption/Desorption	Koc: 131,1 @ 20 °C	calculated
Surface tension	47 mN/m (0,81 g/l @ 20°C (68°F))	OECD 115
Distribution to environmental compartments***	no data available***	

12.5. Results of PBT and vPvB assessment

2-Ethylhexan-1-ol, CAS: 104-76-7
PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

2-Ethylhexan-1-ol, CAS: 104-76-7
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.

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

D.O.T. (49CFR)

14.1. UN number	NA 1993
14.2. UN proper shipping name	Combustible liquid, n.o.s. (2-Ethylhexanol)
14.3. Transport hazard class(es)	3
14.4. Packing group	III
14.5. Environmental hazards	no
14.6. Special precautions for user	
Emergency Response Guide	128
Remarks	Only regulated if over 119 gallons

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	Octanol
Ship type	2
Pollution category	Y

SECTION 15: Regulatory information

Federal and State Regulations
Components of the product are listed in the quoted regulations. For details please refer to the regulations directly. This list is not exhaustive, please check for other applicable regulations.

Federal Regulations
This product is listed on the TSCA inventory

State Regulations

2-Ethylhexan-1-ol, CAS: 104-76-7
MA RTK List
PA RTK List

International Inventories

2-Ethylhexan-1-ol, CAS: 104-76-7
AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2032343 (EU)
ENCS (2)-217 (JP)
ISHL (2)-217 (JP)
KECI KE-13766 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

SECTION 16: Other information

Revision Date	03-Feb-2022
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Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard	2
Fire Hazard	2
Reactivity	0

HMIS (Hazardous Material Information System)

Health Hazard	2
Flammability	2
Physical Hazard	0

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).
The use of a comma in section 3 and section 7 to 12 is the same as a period.

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End of Safety Data Sheet