Material Safety Data Sheet

10040
2-Ethylhexanoic acid

Revision Date 08-Nov-2010
Revision Number 2.00

1. PRODUCT AND COMPANY IDENTIFICATION

Identification of the substance/preparation **2-Ethylhexanoic acid**

CAS-No 149-57-5

Use of the Substance /Preparation Intermediate.

Supplier
OXEA Corporation
1505 West LBJ Freeway, Suite 400
Dallas, TX 75234
USA

Product Information
Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

Emergency telephone number
in USA, call 800 424 9300
outside USA, call 703 527 3887, collect calls accepted

2. HAZARDS IDENTIFICATION

Emergency Overview

Product Description
Physical state liquid
Colour colourless
Odour mild

Statements of hazard
Caution
May cause eye/skin irritation
May cause irritation of respiratory tract
Possible risk of harm to the unborn child
Harmful to aquatic organisms

OSHA Regulatory Status This material is hazardous as defined by the American OSHA Hazard Communication Standard (29CFR 1910.1200).

Potential Health Effects

Principle Routes of Exposure Inhalation, Eye contact, Skin contact, Ingestion.

Inhalation May cause irritation of respiratory tract. Components of the product may be absorbed into the body by inhalation.

Eye contact	May cause eye irritation.
Skin contact	May cause skin irritation. Components of the product may be absorbed into the body through the skin.
Ingestion	Components of the product may be absorbed into the body by ingestion.
Chronic effects	Teratogenic. Possible risk of harm to the unborn child.
Target Organ Effects	Lung oedema Lung irritation Kidney disorders Respiratory disorders
Environmental properties	Harmful to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Concentration (%)	OSHA status
2-Ethylhexanoic acid	149-57-5	> 99,20	hazardous

4. FIRST AID MEASURES

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

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.

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

Notes to physician
Treat symptomatically. If ingested, flush stomach and compensate acidosis.

5. FIRE-FIGHTING MEASURES

OSHA Flammability classification
Combustible liquid Class III B

Suitable extinguishing media
foam. dry chemical. carbon dioxide (CO2). water spray.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases
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

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

Precautions for fire-fighting
Cool containers / tanks with water spray. Water run-off and vapor cloud may be corrosive. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
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.

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

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).

7. HANDLING AND STORAGE

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.

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.

Storage

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Store at temperatures not exceeding 38 °C/ 100 °F.

Advice on common storage
Incompatible products:
bases
amines
strong oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits United States of America

US ACGIH

Component	TWA (mg/m³)	TWA (ppm)	STEL (mg/m³)	STEL (ppm)	Ceiling (mg/m³)	Ceiling (ppm)
2-Ethylhexanoic acid 149-57-5	5 Inhalable fraction and vapor.					

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

Occupational exposure controls

Engineering measures
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 filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH.

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
Suitable material	polyvinylchloride

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.

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

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	colourless
Odour	mild
Molecular weight	144,21
Molecular formula	C8 H16 O2
Flash point	237 °F (114 °C)
Method	closed cup
Autoignition temperature	590 °F (310 °C)
Method	DIN 51794

9. PHYSICAL AND CHEMICAL PROPERTIES

Lower explosion limit 0,8 Vol %
Upper explosion limit 6,7 Vol %
Melting point/range -71 °F (-57 °C) (Pour point)
Boiling point/range 439 - 444 °F (226 - 229 °C) @ 1013 hPa

Vapour pressure

Values [hPa]	@ °C	@ °F
0,04	20	68
4,3	50	122

Density

Values [g/cm³]	@ °C	@ °F	Method
0,907	20	68	DIN 51757

Refractive Index 1,425 @ 68 °F (20 °C)
Viscosity 8,4 mPa*s @ 68,5 °F (20,3 °C)
Method dynamic
pH 3,75 (1 g/l in water @ 25 °C (77 °F))
Water solubility 1,4 g/l @ 68 °F (20 °C)
log Pow 2,7 (measured) OECD 107
Vapour density 5,0 (Air = 1) @ 20 °C (68 °F)

10. STABILITY AND REACTIVITY

Stability
Stable under recommended storage conditions.

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

Materials to avoid
bases, amines, strong oxidizing agents.

Hazardous decomposition products
No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure Inhalation, Eye contact, Skin contact, Ingestion

Acute toxicity				
Routes of Exposure	**Endpoint**	**Values**	**Species**	**Method**
2-Ethylhexanoic acid (149-57-5)				
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	OECD 403

Irritation and corrosion				
Target Organ Effects	**Species**	**Result**	**Method**	
2-Ethylhexanoic acid (149-57-5)				
Skin	rabbit	Mild skin irritation	OECD 404	
Eyes	rabbit	Mild eye irritation	OECD 405	24h

Sensitization				
Target Organ Effects	**Species**	**Evaluation**	**Method**	
2-Ethylhexanoic acid (149-57-5)				
Skin	guinea pig	not sensitizing	OECD 406	

Subacute, subchronic and prolonged toxicity				
Type	**Dose**	**Species**	**Method**	
2-Ethylhexanoic acid (149-57-5)				
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

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Type	**Dose**	**Species**	**Evaluation**	**Method**	
2-Ethylhexanoic acid (149-57-5)					
Developmental Toxicity	NOAEL: 25 mg/kg/d (13 d)	rabbit		EPA OTS 798.4900	Maternal toxicity
Developmental Toxicity	NOAEL: 250 mg/kg/d (13 d)	rabbit		EPA OTS 798.4900	Developmental toxicity
Developmental Toxicity	NOAEL: 250 mg/kg/d (21 d)	rat		EPA OTS 798.4900	Maternal toxicity
Developmental Toxicity	NOAEL: 100 mg/kg/d (21 d)	rat		EPA OTS 798.4900	Developmental toxicity
Reproductive toxicity	NOAEL 300 mg/kg/d	rat, parental		Oral	
Reproductive toxicity	NOAEL 100 mg/kg/d	rat, 1. Generation, male/female		Oral	
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study
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	negative	OECD 474	Oral

2-Ethylhexanoic acid, CAS 149-57-5

CMR Classification
Directive 67/548/EEC, Annex I: Repr. Cat. 3

Note
Handle in accordance with good industrial hygiene and safety practice.

12. ECOLOGICAL INFORMATION

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

Long term toxicity				
Type	**Species**	**Dose**	**Method**	
2-Ethylhexanoic acid (149-57-5)				
Reproductive toxicity	Daphnia magna (Water flea)	EC50: 75 mg/l/21d	OECD 211	

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

Note
Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

ICAO/IATA Not restricted

IMDG Not restricted

IBC-Code
Product name 2-Ethylhexanoic acid
Ship type 3
Pollution category Y

D.O.T. (49CFR) Not restricted

TDG (Transport of Dangerous Goods) Canada Not restricted

15. REGULATORY INFORMATION

OSHA Regulatory Status
This material is hazardous as defined by the American OSHA Hazard Communication Standard (29CFR 1910.1200).

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-Ethylhexanoic acid (CAS #: 149-57-5)
CA Proposition 65
WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm

International Inventories

2-Ethylhexanoic acid (CAS #: 149-57-5)
AICS (AU)
DSL (CA)
G-2143 (CH)
IECSC (CN)
EC-No. 2057436 (EU)

2-Ethylhexanoic acid (CAS #: 149-57-5)

ENCS (2)-608 (JP)
KECI KE-13740 (KR)
PICCS (PH)
TSCA (US)
NZIoC (NZ)

16. OTHER INFORMATION

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

Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard	1
Fire Hazard	1
Reactivity	0

HMIS (Hazardous Material Information System)

Health Hazard	1
Flammability	1
Physical Hazard	0

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Oxea owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 2001/58/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 Oxea homepage (www.oxea-chemicals.com).

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