SAFETY DATA SHEET

2-Ethylhexylamine
10060

Version / Revision	7	**Revision Date**	27-Oct-2020
Supersedes Version	6.00***	**Issuing date**	27-Oct-2020

SECTION 1: Identification

1.1. Product identifier

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

CAS-No 104-75-6

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

Use of the Substance / Preparation Intermediate

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 oral toxicity Category 4, H302
Acute inhalation toxicity Category 2, H330
Skin corrosion/irritation Category 1A, H314
Serious eye damage/eye irritation Category 1, H318
Flammable liquid Category 3, H226

Environmental hazard Aquatic Acute 2; H401

OSHA Specified Hazards Not applicable.

2.2. Label elements

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

Hazard symbol(s)

Signal word **Danger**

Hazard statements

H226: Flammable liquid and vapor.
H302: Harmful if swallowed.
H330: Fatal if inhaled.
H314: Causes severe skin burns and eye damage.
H401: Toxic to aquatic life

Precautionary statements

Prevention

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground and bond container and receiving equipment.
P241: Use explosion-proof electrical/ ventilating/ lighting equipment.
P242: Use non-sparking tools.
P243: Take precautionary measures against static discharge.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well ventilated area.
P260: Do not breathe gas/mist/vapours.
P284: Wear respiratory protection.
P273: Avoid release to the environment.***

Response

P321: Specific treatment: IF ON SKIN: Wash off with 3% acetic acid followed by large amounts of plain water for at least 5 min as a final step.
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.

	P310: Immediately call a POISON CENTER/doctor. P361: Take off immediately all 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 through the skin

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
2-Ethylhexylamine	104-75-6	> 99,0

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Keep at rest. Aerate with fresh air. Call a physician immediately. Symptoms of poisoning may develop many hours after exposure.

Skin
Wash off with 3% acetic acid followed by large amounts of plain water for at least 5 min as a final step. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

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
shortness of breath, convulsions, cough, hypertensive effect.

Special hazard
Stomach perforation, Lung oedema.

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 as an alkaline substance (similar to ammonia). If ingested, irrigate the stomach. Treat skin and mucous membranes with antihistamine and corticoids. In case of lung irritation, first treatment with cortisone spray. Symptoms may be delayed. Later control for pneumonia and lung oedema.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
alcohol-resistant 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)
nitrogen oxides (NOx)
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. Water run-off and vapor cloud may be corrosive. 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. 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. 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. Do not use compressed air for filling, discharging or handling. 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
strong acids
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. Handle under nitrogen, protect from moisture. Keep at temperatures between -1 and 38 °C (30 and 100 °F).

Unsuitable material
copper, including their alloys

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

No exposure limits established regarding ACGIH, OSHA Z-1 and OSHA Z-2.

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 4
Glove thickness	approx 0,55 mm
Break through time	approx 100 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 ammonia vapour and ammonia derivatives (K Filter). 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
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	ammonia-like
Odour threshold	No data available
pH	11,5 (1 g/l in water @ 20 °C (68 °F)) DIN 19268
Melting point/range	< -130 °F (< -90 °C) (Pour point) @ 1013 hPa
Method	DIN ISO 3016
Boiling point/range	330,1 °F (165,6 °C) @ 1 atm (101,3 kPa)
Method	OECD 103
Flash point	127,4 °F (53 °C) @ 1013 hPa
Method	closed cup, DIN EN ISO 2719, ASTM D-93
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	1,1 Vol %
Upper explosion limit	10,8 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
3	0,3	0,002	20	68	DIN EN 13016-2
58	5,8	0,057	80	176	DIN EN 13016-2

Vapour density 4,46 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,788	20	68	DIN 51757

Solubility	2,2 g/l @ 20 °C (68 °F), OECD 105***
log Pow	1,8 @ 25 °C (77 °F)
Autoignition temperature	527 °F (275 °C) @ 989 hPa***
Method	DIN 51794***
Decomposition temperature	No data available
Viscosity	1,12 mPa*s @ 68 °F (20 °C)
Method	ASTM D445, dynamic

9.2. Other information

Molecular weight	129,24
Molecular formula	C8 H19 N
log Koc	3,91 @ pH 7 @ 25 °C calculated
Dissociation constant	pKa 10,5 @ 24,2 °C (75,6 °F), OECD 112***
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
Surface tension	39 mN/m @ 20 °C (68 °F)***

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 acids, oxidizing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed. If heated to thermal decomposition the following decomposition products may occur depending on the conditions. carbon monoxide (CO). nitrogen oxides (NOx). cyanides. nitric acid. nitriles.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

2-Ethylhexylamine, CAS: 104-75-6

Main symptoms
shortness of breath, convulsions, cough, hypertensive effect.
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

Acute toxicity				
2-Ethylhexylamine (104-75-6)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	316 mg/kg	rat, male/female	
Inhalative	LC50	< 1,548 mg/l (4h)	rat, male/female	OECD 403

2-Ethylhexylamine, CAS: 104-75-6
Assessment
The available data lead to the classification given in section 2

Irritation and corrosion				
2-Ethylhexylamine (104-75-6)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	corrosive	OECD 404***	
Eyes	rabbit	corrosive		

2-Ethylhexylamine, CAS: 104-75-6
Assessment
The available data lead to the classification given in section 2
For respiratory irritation, no data are available

Sensitization				
2-Ethylhexylamine (104-75-6)				
Target Organ Effects	Species	Evaluation	Method	
Skin	mouse	not sensitizing	MEST	

2-Ethylhexylamine, CAS: 104-75-6
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-Ethylhexylamine (104-75-6)				
Type	Dose	Species	Method	
Subacute toxicity	NOAEL: 100 mg/kg/d	rat, male/female	OECD 422 Oral***	read across
Subchronic toxicity***	NOAEC: 25 mg/m³ (90 d) Local effects***	rat, male/female***	OECD 413***	Inhalation***

Subchronic toxicity***	NOEC: 125 mg/m³ (90 d) systemic effects***	rat, male/female***	OECD 413***	Inhalation***

2-Ethylhexylamine, CAS: 104-75-6

Assessment

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

Carcinogenicity, Mutagenicity, Reproductive toxicity					
2-Ethylhexylamine (104-75-6)					
Type	Dose	Species	Evaluation	Method	
Carcinogenicity	No data available				
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		mouse lymphoma cells	negative	OECD 476 (Mammalian Gene Mutation) HPRT	In vitro study read across
Mutagenicity		mouse	negative	OECD 474	in vivo read across
Reproductive toxicity	NOAEL 100 mg/kg/d	rat, male/female***		OECD 422, Oral	Reproduction / developmental Toxicity read across
Developmental Toxicity***	NOAEL 75 mg/kg/d***	rat***		OECD 414, Oral***	Maternal toxicity Developmental toxicity***

2-Ethylhexylamine, CAS: 104-75-6

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
Did not show mutagenic effects in animal experiments
No developmental effects in the absence of maternal toxicity
For carcinogecity, no data are available***

2-Ethylhexylamine, CAS: 104-75-6

Aspiration toxicity

no data available Due to the viscosity, this product does not present an aspiration hazard

Other adverse effects

Components of the product may be absorbed into the body 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-Ethylhexylamine (104-75-6)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	24h	EC50: 2,2 mg/l	DIN 38412, part 11 Mobility
Leuciscus idus (Golden orfe)	96h	EC50: >100 - < 500 mg/l (neutralized)	DIN 38412, part 15
Leuciscus idus (Golden orfe)	96h	EC50: >46,4 - < 68,1 mg/l (not neutralized)	DIN 38412, part 15
Desmodesmus subspicatus	72h	EC50: 10,8 mg/l (Growth rate)	OECD 201
Activated sludge (domestic)	30 min	EC50: ~ 600 mg/l	OECD 209

Long term toxicity				
2-Ethylhexylamine (104-75-6)				
Type	Species	Dose	Method	
Aquatic toxicity	Desmodesmus subspicatus***	EC10: 3,4 mg/l (72 h)	OECD 201	

12.2. Persistence and degradability

2-Ethylhexylamine, CAS: 104-75-6
Biodegradation
70 - 80 % (28 d), activated sludge, non-adapted, domestic, aerobic, ISO 14593.

Abiotic Degradation		
2-Ethylhexylamine (104-75-6)		
Type	Result	Method
Hydrolysis	not expected***	
Photolysis	Half-life (DT50): 9,45 h***	calculated***

12.3. Bioaccumulative potential

2-Ethylhexylamine (104-75-6)		
Type	Result	Method
log Pow	1,8@25 °C (77 °F)***	
BCF***	24,9***	calculated***

12.4. Mobility in soil

2-Ethylhexylamine (104-75-6)

Type	Result	Method
Surface tension	39 mN/m @ 20 °C (68 °F)***	OECD 115***
Adsorption/Desorption	log Koc: 3,91 @ pH 7 @ 25 °C	calculated
Distribution to environmental compartments	Percent distribution in Media: Air: 72,5% Soil: 1,3% Water: 24,9% Sediment: 1,3% Suspended sediment: 0% Biota: 0%	calculated

12.5. Results of PBT and vPvB assessment

2-Ethylhexylamine, CAS: 104-75-6
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-Ethylhexylamine, CAS: 104-75-6
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

D.O.T. (49CFR)

14.1. UN number UN 2276
14.2. UN proper shipping name 2-Ethylhexylamine
14.3. Transport hazard class(es) 3
Subsidiary Risk 8
14.4. Packing group III
14.5. Environmental hazards no
14.6. Special precautions for user

Emergency Response Guide	132

ICAO-TI / IATA-DGR

14.1. UN number	UN 2276
14.2. UN proper shipping name	2-Ethylhexylamine
14.3. Transport hazard class(es)	3
Subsidiary Risk	8
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 2276
14.2. UN proper shipping name	2-Ethylhexylamine
14.3. Transport hazard class(es)	3
Subsidiary Risk	8
14.4. Packing group	III
14.5. Environmental hazards	no
14.6. Special precautions for user	
EmS	F-E, S-C

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

Product name	2-Ethylhexylamine
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-Ethylhexylamine, CAS: 104-75-6

MA RTK List
NJ RTK List
NY RTK List
PA RTK List

International Inventories

2-Ethylhexylamine, CAS: 104-75-6
AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2032338 (EU)
ENCS (2)-133 (JP)
ISHL (2)-133 (JP)
KECI KE-13782 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

SECTION 16: Other information

Revision Date	27-Oct-2020
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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	3
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.

Disclaimer

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End of Safety Data Sheet