

SAFETY DATA SHEET



2-Ethylhexylamine
10060

Version / Revision 6
Supersedes Version 5.00***

Revision Date 27-Oct-2020
Issuing date 27-Oct-2020

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

1.1. Product identifier

Identification of the substance/preparation

2-Ethylhexylamine

CAS-No 104-75-6
EC No. 203-233-8
Registration number (REACH) 01-2119484631-36

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

Identified uses Intermediate
Formulation
laboratory chemicals
Polymerization
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 +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)

Flammable liquid Category 3, H226
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

Additional information

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

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2.2. Label elements

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

Hazard pictograms



Signal word

Danger

Hazard statements

H226: Flammable liquid and vapour.
H302: Harmful if swallowed.
H330: Fatal if inhaled.
H314: Causes severe skin burns and eye damage.

Precautionary statements

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.
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.
P403 + P235: Store in a well ventilated place. Keep cool.***

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

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-Ethylhexylamine	104-75-6	01-2119484631-36	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 2; H330 Skin Corr. 1A; H314 Eye Dam. 1; H318	> 99,0

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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. Call a physician immediately. Symptoms of poisoning may develop many hours after exposure.

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 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.

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 (NO_x)

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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

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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

Temperature class

T3

7.3. Specific end use(s)

Intermediate
Formulation
laboratory chemicals
Polymerization

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.

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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 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

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.

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	< -90 °C (Pour point) @ 1013 hPa
Boiling point/range	165,6 °C @ 1013 hPa
Flash point	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 %

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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, OECD 105***

log Pow 1,8 @ 25 °C (77 °F)

Autoignition temperature 275 °C @ 989 hPa***

Method DIN 51794***

Decomposition temperature No data available

Viscosity 1,12 mPa*s @ 20 °C

Method ASTM D445, dynamic

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	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***
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.

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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

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/m ³ (90 d) Local effects***	rat, male/female***	OECD 413***	Inhalation***
Subchronic toxicity***	NOEC: 125 mg/m ³ (90 d) systemic	rat, male/female***	OECD 413***	Inhalation***

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	effects***			
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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 carcinogenicity, no data are available***

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

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>.

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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	Percent distribution in Media: Air:	calculated

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compartments	72,5% Soil: 1,3% Water: 24,9% Sediment: 1,3% Suspended sediment: 0% Biota: 0%	
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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.

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

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

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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

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

Regulation 1272/2008, Annex VI

not listed

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)

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

H226: Flammable liquid and vapour.
H302: Harmful if swallowed.
H330: Fatal if inhaled.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.

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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