

SAFETY DATA SHEET

Creation Date 08-Sep-2014

Revision Date 19-Dec-2025

Revision Number 7

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name 2-Ethylhexanal

Cat No. : AC410090000; AC410090010; AC410090050; AC410092500

CAS No 123-05-7
Synonyms 2-Ethylcapronaldehyde; 2-Ethylhexylaldehyde; Hexanal, 2-ethyl-

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

| | |
|-----------------------|------------|
| Flammable liquids | Category 3 |
| Skin Sensitization | Category 1 |
| Reproductive Toxicity | Category 2 |

Label Elements

Signal Word

Warning

Hazard Statements

Flammable liquid and vapor
May cause an allergic skin reaction
Suspected of damaging fertility or the unborn child

**Precautionary Statements****Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing should not be allowed out of the workplace

Wear protective gloves

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground and bond container and receiving equipment

Use explosion-proof electrical/ventilating/lighting equipment

Wear protective gloves/protective clothing/eye protection/face protection

Take action to prevent static discharges

Use non-sparking tools

Response

IF exposed or concerned: Get medical attention/advice

Skin

If skin irritation or rash occurs: Get medical advice/attention

Take off contaminated clothing and wash before reuse

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

Fire

In case of fire: Use CO₂, dry chemical, or foam to extinguish

Storage

Store locked up

Store in a well-ventilated place. Keep cool

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

3. Composition/information on Ingredients

| Component | CAS No | Weight % |
|--------------------|----------|----------|
| 2-Ethylhexaldehyde | 123-05-7 | >95 |

4. First-aid measures

General Advice

If symptoms persist, call a physician.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

| | |
|--|--|
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. |
| Most important symptoms and effects | May cause allergic skin reaction. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | 50 °C / 122 °F |
| Method - | No information available |
| Autoignition Temperature | 210 °C / 410 °F |
| Explosion Limits | |
| Upper | 0.00 vol % |
| Lower | 1.40 vol % |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
2

Instability
0

Physical hazards
N/A

6. Accidental release measures

| | |
|---|---|
| Personal Precautions | Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. |
| Environmental Precautions | Should not be released into the environment. Do not flush into surface water or sanitary sewer system. |
| Methods for Containment and Clean Up | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. |

7. Handling and Storage

| | |
|-----------------|---|
| Handling | Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take |
|-----------------|---|

precautionary measures against static discharges.

Storage.

Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases.

8. Exposure controls / personal protection

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment**Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type:

Organic gases and vapours filter. Type A. Brown. conforming to EN14387.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance**Physical State**

Liquid

Color

Colorless

Odor

Slight

Odor Threshold

No information available

Property**Values****Remarks****• Method****Melting Point/Range**

-90 °C / -130 °F

Softening Point

No data available

Boiling Point/Range

162 - 165 °C / 323.6 - 329 °F

@ 760 mmHg

Flash Point

50 °C / 122 °F

Method - No information available

Flammability (liquid)

Flammable

On basis of test data

Flammability (solid,gas)

Not applicable

Liquid

Explosion Limits

Lower 1.4

Autoignition Temperature

210 °C / 410 °F

Decomposition Temperature

No data available

pH

No information available

Viscosity

No data available

Water Solubility

Insoluble

Solubility in other solvents

No information available

Partition Coefficient (n-octanol/water)**Component**

log Pow

2-Ethylhexaldehyde

3.07

| | | |
|-----------------------------------|-------------------------|-------------|
| Vapor Pressure | 1.8 mmHg @ 20 °C | |
| Density / Specific Gravity | 0.820 | |
| Bulk Density | Not applicable | Liquid |
| Vapor Density | 4.42 | (Air = 1.0) |
| Particle characteristics | Not applicable (liquid) | |

Other Information

| | |
|-----------------------------|--|
| Molecular Formula | C8 H16 O |
| Molecular Weight | 128.21 |
| Explosive Properties | explosive air/vapour mixtures possible |

10. Stability and reactivity

| | |
|---|--|
| Reactive Hazard | None known, based on information available |
| Stability | No information available. |
| Conditions to Avoid | Incompatible products. Exposure to light. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. |
| Incompatible Materials | Strong oxidizing agents, Strong acids, Strong bases |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂) |
| Hazardous Polymerization | Polymerization can occur. |
| Hazardous Reactions | None under normal processing. |

11. Toxicological information

Information on expected route of exposure

| | |
|-------------------|--|
| Inhalation | May produce an allergic reaction. |
| Ingestion | May cause allergic reaction. May be harmful if swallowed. |
| Eyes | Avoid contact with eyes. Sensitization. |
| Skin | Avoid contact with skin. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. |

Toxicology data for the components

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------------|--------------------|-------------------|------------------------------|
| 2-Ethylhexaldehyde | 2600 mg/kg (Rat) | > 16 g/kg (Rat) | LC50 > 6.83 mg/L (Rat) 4 h |

| | |
|---|---|
| Toxicologically Synergistic Products | No information available |
| (b) skin corrosion/irritation; | No data available |
| (c) serious eye damage/irritation; | No data available |
| (d) respiratory or skin sensitization; | |
| Respiratory | No data available |
| Skin | Category 1 |
| | May cause sensitization by skin contact |
| (e) germ cell mutagenicity; | No data available |

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|--------------------|----------|------------|------------|------------|------------|------------|
| 2-Ethylhexaldehyde | 123-05-7 | Not listed | Not listed | Not listed | Not listed | Not listed |

(g) reproductive toxicity;

Category 2

Reproductive Effects

May cause harm to the unborn child. May impair fertility.

(h) STOT-single exposure;

No data available

(i) STOT-repeated exposure;

No data available

Target Organs

No information available.

(j) aspiration hazard;

No data available

Other Adverse Effects

The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Other Adverse Effects

The toxicological properties have not been fully investigated.

Endocrine Disrupting Properties

This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|--------------------|--|-----------------|--|---|
| 2-Ethylhexaldehyde | EC50: = 52 mg/L, 96h (Desmodesmus subspicatus) EC50: = 38 mg/L, 72h (Desmodesmus subspicatus) | Not listed | EC50 = 206 mg/L 30 min EC50 > 200 mg/L 17 h | EC50: = 11.5 mg/L, 48h (Daphnia magna) |

Persistence and Degradability

Persistence is unlikely

Bioaccumulation/ Accumulation

No information available.

Mobility

Is not likely mobile in the environment due its low water solubility.

| Component | log Pow |
|--------------------|---------|
| 2-Ethylhexaldehyde | 3.07 |

13. Disposal considerations

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1191
 Proper Shipping Name OCTYL ALDEHYDES
 Hazard Class 3
 Packing Group III

TDG

UN-No UN1191
 Proper Shipping Name OCTYL ALDEHYDES
 Hazard Class 3
 Packing Group III

IATA

UN-No UN1191
 Proper Shipping Name OCTYL ALDEHYDES
 Hazard Class 3
 Packing Group III

IMDG/IMO

UN-No UN1191
 Proper Shipping Name OCTYL ALDEHYDES
 Hazard Class 3
 Packing Group III

15. Regulatory Information

United States of America Inventory

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|--------------------|----------|------|--|--------------------------------|
| 2-Ethylhexaldehyde | 123-05-7 | X | ACTIVE | - |

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|--------------------|----------|-----|-----|-----------|-------|------|------|------|-------|------|
| 2-Ethylhexaldehyde | 123-05-7 | X | - | 204-596-5 | X | X | X | X | X | - |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|--------------------|---------------|------------|--------------|----------|--------------|
| 2-Ethylhexaldehyde | X | X | X | - | - |

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant Y
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH Not applicable

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|--------------------|----------|---|---|---|
| 2-Ethylhexaldehyde | 123-05-7 | - | - | - |

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

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|--------------------|----------|----------|------------------------------|---------------------------|--|
| 2-Ethylhexaldehyde | 123-05-7 | Listed | Not applicable | Not applicable | Not applicable |

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|--------------------|----------|---|--|----------------------------|------------------------------------|
| 2-Ethylhexaldehyde | 123-05-7 | Not applicable | Not applicable | Not applicable | Not applicable |

16. Other Information

| | |
|------------------|---|
| Prepared By | Product stewardship (Regulatory Affairs) Thermo Fisher Scientific email - begel.sdsdesk@thermofisher.com |
| Creation Date | 08-Sep-2014 |
| Revision Date | 19-Dec-2025 |
| Print Date | 19-Dec-2025 |
| Revision Summary | Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024. |

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS