

1 Identification

Product identifier

Product name: Valeraldehyde

Stock number: B21389, L12213

CAS Number:

110-62-3

EC number:

203-784-4

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar

Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H335 May cause respiratory irritation.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS02 GHS05 GHS07

Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapor.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405

Store locked up.

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

B2 - Flammable liquid

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 2 Health (acute effects) = 2

FIRE 3 Flammability = 3

REACTIVITY 1 Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Product name: Valeraldehyde

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3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

110-62-3 Valeraldehyde

Concentration: ≤100%

Identification number(s):

EC number: 203-784-4

4 First-aid measures

Description of first aid measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

Causes skin irritation.

Harmful if inhaled.

Causes serious eye damage.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions: Do not allow product to reach sewage system or any water course.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards: Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-1: Substance is not listed.

PAC-2: Substance is not listed.

PAC-3: Substance is not listed.

7 Handling and storage

Handling

Precautions for safe handling

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Keep ignition sources away.

Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility:

Store away from air.

Store away from oxidizing agents.

Further information about storage conditions:

Store under dry inert gas.

This product is air sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

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USA

Product name: Valeraldehyde

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Control parameters

Components with limit values that require monitoring at the workplace:

110-62-3 Valeraldehyde (100.0%)

REL (USA)	Long-term value: 175 mg/m³, 50 ppm See Pocket Guid App. C
TLV (USA)	Long-term value: 176 mg/m³, 50 ppm
EL (Canada)	Long-term value: 50 ppm
EV (Canada)	Long-term value: 175 mg/m³, 50 ppm

Additional information: No data

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Material of gloves Butyl rubber, BR

Eye protection:

Tightly sealed goggles

Safety glasses with side shields / NIOSH (US) or EN 166(EU)

Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Odor:	Like aldehyde
Odor threshold:	Not determined.
pH-value:	Not determined.

Change in condition

Melting point/Melting range:	-92 °C (-134 °F)
Boiling point/Boiling range:	102-103 °C (216-217 °F)
Sublimation temperature / start:	Not determined

Flash point:	8 °C (46 °F)
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	205 °C (401 °F)
Decomposition temperature:	Not determined
Auto igniting:	Not determined.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures is possible.

Explosion limits:

Lower:	1.7 Vol %
Upper:	6.8 Vol %
Vapor pressure at 20 °C (68 °F):	36 hPa (27 mm Hg)
Density at 20 °C (68 °F):	0.81 g/cm³ (6.759 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water at 20 °C (68 °F):	13.5 g/l
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic at 20 °C (68 °F):	0.54 mPas
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity No information known.

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions Reacts with strong oxidizing agents

Conditions to avoid No further relevant information available.

Incompatible materials:

Air

Oxidizing agents

Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Harmful if inhaled.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

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USA

Product name: Valeraldehyde	
(Contd. of page 3)	
LD/LC50 values that are relevant for classification:	
Oral	LD50 3200 mg/kg (rat)
Dermal	LD50 4857 mg/kg (rabbit)
Skin irritation or corrosion: May cause irritation	
Eye irritation or corrosion: Causes serious eye damage.	
Sensitization: No sensitizing effects known.	
Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.	
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.	
Reproductive toxicity: No effects known.	
Specific target organ system toxicity - repeated exposure: No effects known.	
Specific target organ system toxicity - single exposure: May cause respiratory irritation.	
Aspiration hazard: No effects known.	
Subacute to chronic toxicity: No effects known.	
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.	
12 Ecological information	
Toxicity	
Aquatic toxicity: No further relevant information available.	
Persistence and degradability: No further relevant information available.	
Bioaccumulative potential: No further relevant information available.	
Mobility in soil: No further relevant information available.	
Additional ecological information:	
General notes:	
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.	
Avoid transfer into the environment.	
Results of PBT and vPvB assessment	
PBT: Not applicable.	
vPvB: Not applicable.	
Other adverse effects: No further relevant information available.	
13 Disposal considerations	
Waste treatment methods	
Recommendation: Consult state, local or national regulations to ensure proper disposal.	
Uncleaned packagings:	
Recommendation: Disposal must be made according to official regulations.	
14 Transport information	
UN-Number	UN2058
DOT, IMDG, IATA	
UN proper shipping name	Valeraldehyde
DOT	2058 Valeraldehyde
ADR	VALERALDEHYDE
IMDG, IATA	
Transport hazard class(es)	
DOT	
	
Class	3 Flammable liquids
Label	3
ADR	
	
Class	3 (F1) Flammable liquids
Label	3
IMDG, IATA	
	
Class	3 Flammable liquids
Label	3
Packing group	
DOT, ADR, IMDG, IATA	II
Environmental hazards:	
Not applicable.	
Special precautions for user	
Warning: Flammable liquids	
EMS Number:	F-E, S-D
Stowage Category	B
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	
Not applicable.	
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
Marine Pollutant (DOT):	No
IMDG	
Limited quantities (LQ)	1L

Product name: Valeraldehyde	
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Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":	UN 2058 VALERALDEHYDE, 3, II

15 Regulatory information	
Safety, health and environmental regulations/legislation specific for the substance or mixture	
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)	
Hazard pictograms	
  	
GHS02 GHS05 GHS07	
Signal word Danger	
Hazard statements	
H225 Highly flammable liquid and vapor.	
H332 Harmful if inhaled.	
H315 Causes skin irritation.	
H318 Causes serious eye damage.	
H335 May cause respiratory irritation.	
Precautionary statements	
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.	
P261 Avoid breathing dust/fume/gas/mist/vapors/spray	
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.	
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P405 Store locked up.	
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.	
National regulations	
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.	
All components of this product are listed on the Canadian Domestic Substances List (DSL).	
SARA Section 313 (specific toxic chemical listings) Substance is not listed.	
California Proposition 65	
Prop 65 - Chemicals known to cause cancer Substance is not listed.	
Prop 65 - Developmental toxicity Substance is not listed.	
Prop 65 - Developmental toxicity, female Substance is not listed.	
Prop 65 - Developmental toxicity, male Substance is not listed.	
Information about limitation of use: For use only by technically qualified individuals.	
Other regulations, limitations and prohibitive regulations	
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.	
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.	
Substance is not listed.	
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.	
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.	

16 Other information	
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.	
Department issuing SDS: Global Marketing Department	
Date of preparation/Revision: Print date, revision date and version number are in the header of each page.	
Abbreviations and acronyms:	
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)	
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
EINECS: European Inventory of Existing Commercial Chemical Substances	
CAS: Chemical Abstracts Service (division of the American Chemical Society)	
HMIS: Hazardous Materials Identification System (USA)	
WHMIS: Workplace Hazardous Materials Information System (Canada)	
LC50: Lethal concentration, 50 percent	
LD50: Lethal dose, 50 percent	
PBT: Persistent, Bioaccumulative and Toxic	
SVHC: Substances of Very High Concern	
vPvB: very Persistent and very Bioaccumulative	
ACGIH: American Conference of Governmental Industrial Hygienists (USA)	
OSHA: Occupational Safety and Health Administration (USA)	
NTP: National Toxicology Program (USA)	
IARC: International Agency for Research on Cancer	
EPA: Environmental Protection Agency (USA)	
Flam. Liq. 2: Flammable liquids – Category 2	
Acute Tox. 4: Acute toxicity – Category 4	
Skin Irrit. 2: Skin corrosion/irritation – Category 2	
Eye Dam. 1: Serious eye damage/eye irritation – Category 1	
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3	