

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 29, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Propionaldehyde

1.2 Other means of identification

Product number CCEM500693

Other names Propionaldehyde; Propionaldehyde,AcroSeal; Propanal

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 2

Skin irritation, Category 2

Eye irritation, Category 2

Specific target organ toxicity – single exposure, Category 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

Precautionary statement(s)

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 action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P302+P352 IF ON SKIN: Wash with plenty of water/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell.
Storage	P403+P235 Store in a well-ventilated place. Keep cool. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Propionaldehyde	Propionaldehyde	123-38-6	204-623-0	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention.

4.2 Most important symptoms/effects, acute and delayed

Vapors will irritate nose and throat, and may cause nausea and vomiting. Liquid causes eye irritation. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aldehydes and Related Compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

A water spray may dilute to a point where combustion will not be supported. Water may be ineffective. Use alcohol foam, carbon dioxide, or dry chemical.

5.2 Specific hazards arising from the chemical

Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT wash away into sewer. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Remove all ignition sources. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT wash away into sewer. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Eliminate all ignition sources, stop or control the leak, if this can be without undue risk. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures. Control runoff and isolate discharged material for proper disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from acids, bases and oxidants. Cool. Keep in the dark. Store only if stabilized. Store in cool, dry, well-ventilated location. Store away from heat and oxidizers. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage warehouse, room, or cabinet. Separate from oxidizing materials and other reactive hazards.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 20 ppm as TWA

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Propionaldehyde is a clear colorless liquid with an overpowering fruity-like odor. Less dense than water. Flash point 15°F. Vapors are heavier than air.
Colour	Liquid
Odour	SUFFOCATING, FRUITY
Melting point/freezing point	-81°C(lit.)
Boiling point or initial boiling point and boiling range	46-50°C(lit.)
Flammability	Highly flammable.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 2.6% by volume; Upper flammable limit: 17% by volume
Flash point	-40°C
Auto-ignition temperature	404°F
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.3167 cP at 26.7 deg C
Solubility	50 to 100 mg/mL at 64° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 0.59
Vapour pressure	18.77 psi (55 °C)
Density and/or relative density	0.805g/mL at 25°C(lit.)

Relative vapour density	2 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance can presumably form explosive peroxides. The substance may polymerize under the influence of acids, bases, amines and oxidants. This generates fire or explosion hazard. Decomposes on burning. This produces toxic gases and irritating fumes.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Flammable Liquid. The vapour is heavier than air and may travel along the ground; distant ignition possible. PROPIONALDEHYDE may form explosive peroxides. Reacts vigorously with oxidizing agents. Explosive in the form of vapor when exposed to heat or flame [Lewis]. Incompatible with strong bases and strong reducing agents. Vigorous polymerization reaction with methyl methacrylate. Polymerization may also occur in the presence of acids or caustics (NTP, 1992).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Reacts vigorously with oxidizing materials.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 800 to 1,600 mg/kg
- Inhalation: LC50 Rat inhalation 26,000 ppm/30 min
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

No information is available on the reproductive or developmental effects of propionaldehyde in humans or animals.

STOT-single exposure

The vapour is irritating to the eyes and respiratory tract. The substance is severely irritating to the eyes and skin.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill, length 33-75 mm); Conditions: freshwater, static, 23 deg C, pH 7.6-7.9, hardness 55 mg/L CaCO₃; Concentration: 130000 ug/L for 96 hr
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: EC50; Species: *Pseudokirchneriella subcapitata* (Green algae, exponential growth phase, 15000 cells/mL, UTEX 1648); Conditions: static, 24 deg C, dissolved oxygen 1-2 mg/L; Concentration: 11380 ug/L for 48 hr; Effect: decreased photosynthesis
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Propionaldehyde, present at 100 mg/L, reached 94% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(1). Laboratory tests confirm the degradability of propionaldehyde by acclimated sludge and sewage(1-5) with theoretical BODs of 38% in 5 days(2), 100% in 5 hrs(3), and 29% in 24 hrs(4). Propionaldehyde is generally degraded to propionic acid and then further degraded to carbon dioxide and water(5). Six day BOD:ThOD ratios for propionaldehyde ranged from 0.35 to 0.53 using an activated sludge inocula(5). Percentages of ThOD biodegraded after 6, 12, and 24 hrs were 14.4, 24.9, and 28.8, respectively(5).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for propionaldehyde(SRC), using a log Kow of 0.59(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of propionaldehyde is estimated as 50(SRC), using a log Kow of 0.59(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that propionaldehyde is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1275 (For reference only, please check.) IMDG: UN1275 (For reference only, please check.) IATA: UN1275 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: PROPIONALDEHYDE (For reference only, please check.) IMDG: PROPIONALDEHYDE (For reference only, please check.) IATA: PROPIONALDEHYDE (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Propionaldehyde	Propionaldehyde	123-38-6	204-623-0
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date April 29, 2024

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Check for peroxides prior to distillation; eliminate if found. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.