

Propionaldehyde

10640

Version / Revision6.02Revision Date10-Feb-2021Supersedes Version6.01***Issuing date10-Feb-2021

SECTION 1: Identification

1.1. Product identifier

Identification of the substance/preparation Propionaldehyde

CAS-No 123-38-6

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 4, H332 Skin corrosion/irritation Category 2, H315

Serious eye damage/eye irritation Category 1, H318

Target Organ Systemic Toxicant - Single exposure Category 3, H335

Emergency telephone number 1 / 15



Propionaldehyde 10640

0640 Version / Revision 6.02

Flammable liquid Category 2, H225

Environmental hazard Aquatic Acute 3; H402

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

H225: Highly flammable liquid and vapor.

H302: Harmful if swallowed. H332: Harmful if inhaled.

H315: Causes skin irritation.

H318: Causes serious eye damage. H335: May cause respiratory irritation.

H402: Harmful 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 action to prevent static discharges. P261: Avoid breathing gas/mist/vapours. 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.

P273: Avoid release to the environment.

P280: Wear protective gloves/eye protection/face protection.

Response

P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated

clothing. Rinse skin with water or shower.

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for

breathing.



Propionaldehyde 10640

Version / Revision 6.02

> 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.

P362 + P364: Take off contaminated clothing and wash it before reuse.

Storage P403 + P235: Store in a well ventilated place. Keep cool.

P405: Store locked up.

P501: Dispose of contents/container in accordance with local regulation. Disposal

2.3. Other hazards

Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback Vapours may form explosive mixture with air

Components of the product may be absorbed into the body by inhalation and ingestion

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
Propionaldehyde	123-38-6	> 98,5

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Obtain medical attention.

Ingestion

Do not induce vomiting without medical advice. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Main symptoms

shortness of breath, cough, central nervous system depression, hypertensive effect, narcosis, headache, nausea, vomiting, unconsciousness.

Special hazard



Propionaldehyde 10640

Version / Revision

6.02

Lung oedema, Lung irritation, Kidney disorders, Liver disorders.

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 symptomatically. In case of lung irritation, first treatment with cortisone spray.

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)

Combustion gases of organic materials must in principle be graded as inhalation poisons Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback Vapours may form explosive mixture with air

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. 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



Propionaldehyde 10640

Version / Revision

6.02

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. 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. 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. Do not use compressed air for filling, discharging or handling.

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

acids and bases amines 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 is heavier than air and can travel considerable distance to a source of ignition and flashback. Vapours may form explosive mixture with air. The pressure in sealed containers can increase under the influence of heat.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Handle under

Emergency telephone number 5 / 15

NCEC +1 202 464 2554 USA (A-US)



Propionaldehyde

10640 Version / Revision 6.02

nitrogen, protect from moisture. Keep at temperatures between 9 and 38 °C (48 and 100 °F).

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

US ACGIH

Component	TWA	TWA	STEL	STEL
	(mg/m³)	(ppm)	(mg/m³)	(ppm)
Propionaldehyde CAS: 123-38-6		20		

Note

For details and further information please refer to the original regulation.

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 butyl-rubber

Evaluation according to EN 374: level 5

Glove thickness approx 0,3 mm
Break through time approx 240 min

Emergency telephone number 6 / 15

NCEC +1 202 464 2554 USA (A-US)



6.02

Propionaldehyde 10640

Version / Revision

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 organic vapour. 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

If possible use in closed systems. 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

AppearanceliquidColourcolourlessOdourpungentOdour threshold1 ppm

pH No data available Melting point/range <-130 °F (<-90 °C)

Method DIN ISO 3016

Boiling point/range 119,3 °F (48,5 °C) @ 1 atm (101,3 kPa)

MethodOECD 103Flash point-22 °F (-30 °C)MethodDIN EN ISO 13736Evaporation rateNo data available

Flammability (solid, gas) Does not apply, the substance is a liquid

Lower explosion limit 2,6 Vol % Upper explosion limit 17 Vol %

Vapour pressure

Values [kPa] Values [atm] @ °C @ °F Values [hPa] Method 364 36,4 0.359 20 68 DIN EN 13016-2 1096 109,6 122 1.08 50 DIN EN 13016-2

Vapour density 1,8 (Air = 1) @ 37,8 °C (100 °F)

Relative density

Values @ °C @ °F Method 0,7969 20 68 DIN 51757

Solubility 254 g/l @ 68 °F (20 °C), in water



Propionaldehyde

10640 **Version / Revision** 6.02

0,2 @ 25 °C (77 °F) OECD 117 log Pow

Autoignition temperature 383 °F (195 °C) @ 1 atm (101,3 kPa)

Method DIN 51794

Decomposition temperature No data available

0,43 mm²/s @ 68 °F (20 °C) **Viscosity** Method kinematic, OECD 114

9.2. Other information

58,08 Molecular weight Molecular formula C3 H6 O

log Koc 0,441 calculated

Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups

associated with oxidizing properties

1,362 @ 68 °F (20 °C) **Refractive Index**

Does not apply, substance is not explosive. There are no chemical groups **Explosive properties**

associated with explosive properties

71,5 mN/m (1 g/I @ 20°C (68°F)) **Surface tension**

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. Stable up to approximately 48 °C.

10.3. Possibility of hazardous reactions

Hazardous reactions occur in the presence of acids, base or oxidizing agents. This reaction is exothermic and may create heat. When finely distributed, self-ignition is possible. May form explosive peroxides.***

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

bases, amines, acids, oxidizing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information



Propionaldehyde 10640

Version / Revision

6.02

11.1. Information on toxicological effects

Likely routes of exposure

Ingestion, Inhalation, Eye contact, Skin contact

Propionaldehyde, CAS: 123-38-6

Main symptoms

shortness of breath, cough, central nervous system depression, hypertensive effect, narcosis, headache, nausea, vomiting, unconsciousness.

Target Organ Systemic Toxicant - Single exposure

The available data lead to the classification given in section 2

Target Organ Systemic Toxicant - Repeated exposure

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

STOT RE

Acute toxicity				
Propionaldehyde (123-38-6))			
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	1690 mg/kg	rat, female	OECD 401
Inhalative	LC50	> 4,6 mg/l (4h)	rat, male/female	OECD 403
Dermal	LD50	2460 mg/kg	rabbit female	OECD 402

Propionaldehyde, CAS: 123-38-6

Assessment

The available data lead to the classification given in section 2

Irritation and corrosion					
Propionaldehyde (123-38-6)					
Target Organ Effects	Species	Result	Method		
Skin	rabbit	irritating	OECD 404		
Eyes	rabbit	severe irritation	OECD 405		

Propionaldehyde, CAS: 123-38-6

Assessment

The available data lead to the classification given in section 2

For respiratory irritation, no data are available

Sensitization				
Propionaldehyde (123-38-6	5)			
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	
Skin	mouse female	not sensitizing	OECD 429	

Propionaldehyde, CAS: 123-38-6

Assessment

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

Skin sensitization

For respiratory sensitization, no data are available



Propionaldehyde 10640

Version / Revision

6.02

Subacute, subchronic and prolonged toxicity		

Subacute, subchronic and prolonged toxicity					
Propionaldehyde (123-38-6)					
Type	Dose	Species	Method		
Subchronic toxicity	NOAEC: 362 mg/m ³ (49 d)	rat, male	OECD 422	Inhalation	
Subacute toxicity	NOAEC: 217 mg/m ³ (20 d)	rat			

Propionaldehyde, CAS: 123-38-6

Assessment

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

STOT RE

Carcinogenicity, Muta	Carcinogenicity, Mutagenicity, Reproductive toxicity					
Propionaldehyde (12:	3-38-6)					
Туре	Dose	Species	Evaluation	Method		
Reproductive toxicity	NOEC > 3620 mg/m ³	rat, parental		OECD 422		
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study	
Mutagenicity		mouse	negative	OECD 474	in vivo micronucleus test	
Mutagenicity		human lymphocytes	negative	OECD 479 (SCE)	In vitro study	
Mutagenicity		human hepatocytes	negative	OECD 482	In vitro study	
Mutagenicity		CHED cells (chinese Hamster Embroonic Diploid)	positive	OECD 473 (Chromosomal Aberration)	In vitro study	

Propionaldehyde, CAS: 123-38-6

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

Did not show mutagenic effects in animal experiments

Propionaldehyde, CAS: 123-38-6

Aspiration toxicity

no data available

Other adverse effects

Components of the product may be absorbed into the body by inhalation and ingestion.

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.



Propionaldehyde 10640

Version / Revision

6.02

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Propionaldehyde (123-38-6)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 88,7 mg/l	84/449/EEC C.2
Pimephales promelas (fathead minnow)	96h	EC50: 14 mg/l	
Desmodesmus subspicatus	72h	EC50: 260 mg/l (Growth rate)	DIN 38412, part 9
Pseudomonas putida	14 h	TTC: 124 mg/l	DIN 38412, part 8
Fish (fresh water) Poecilia retiaculata (guppy)	14 d	EC50: 15 mg/l	OECD 204

12.2. Persistence and degradability

Propionaldehyde, CAS: 123-38-6

Biodegradation

91 - 97 % (28 d), activated sludge, aerobic, OECD 301 C.

Abiotic Degradation		
Propionaldehyde (123-38-6)		
Type	Result	Method
Hydrolysis	No data available	
Photolysis	Half-life (DT50): 17,51 h	SRC AOP v1.92

12.3. Bioaccumulative potential

Propionaldehyde (123-38-6)				
Туре	Result	Method		
log Pow	0,2 @ 25 °C (77 °F)	OECD 117		
BCF	3,162, (calculated)			

12.4. Mobility in soil

Propionaldehyde (123-38-6)				
Туре	Result	Method		
Adsorption/Desorption	log Koc: 0,441	calculated		
Surface tension	71,5 mN/m (1 g/l @ 20°C (68°F))			
Distribution to environmental compartments	Air: 4,52 Soil: 47,7 Water: 47,7			
	Sediment: 0,09			



Propionaldehyde 10640

Version / Revision

6.02

12.5. Results of PBT and vPvB assessment

Propionaldehyde, CAS: 123-38-6
PBT and vPvB assessment
Not required

12.6. Other adverse effects

Propionaldehyde, CAS: 123-38-6

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 1275

14.2. UN proper shipping name Propionaldehyde

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

Reportable Quantity (RQ) 1000 lb/ 454 kg (Propionaldehyde)

Emergency Response Guide 129

ICAO-TI / IATA-DGR

14.1. UN number UN 1275

14.2. UN proper shipping name Propionaldehyde

14.3. Transport hazard class(es) 3
14.4. Packing group



Propionaldehyde 10640

10640 Version / Revision 6.02

14.5. Environmental hazards

14.6. Special precautions for user no data available

IMDG

14.1. UN number UN 1275

14.2. UN proper shipping name Propionaldehyde

14.3. Transport hazard class(es)
3
14.4. Packing group
14.5. Environmental hazards

14.6. Special precautions for user

EmS F-E, S-D

14.7. Transport in bulk according to Annex II

of MARPOL and the IBC Code

Product name Propionaldehyde

Ship type 3
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

Section 313 Supplier Notification

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

Component	CAS-No	Concentration (%)
Propionaldehyde	123-38-6	> 98,5

This information must be included in all SDSs that are copied and distributed for this material.

Propionaldehyde, CAS: 123-38-6

40CFR 63.100-.106, Table 2 40CFR 63.100-.106, Table 1: Group IV CERCLA Hazardous Substance

CERCLA RQ 1000 LBS

EPCRA SARA Title III 313

de minimis concentration 1.0 %

State Regulations

Emergency telephone number 13 / 15

NCEC +1 202 464 2554 USA (A-US)



Propionaldehyde

10640 Version / Revision 6.02

Propionaldehyde, CAS: 123-38-6

IL Chemical Safety Act

MA Hazardous Substances List

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

RI RTK List

International Inventories

Propionaldehyde, CAS: 123-38-6

AICS (AU) DSL (CA) IECSC (CN)

EC-No. 2046230 (EU) ENCS (2)-486 (JP) ISHL (2)-486 (JP)

KECI KE-29254 (KR)

INSQ (MX) PICCS (PH)

TSCA (US)

NZIoC (NZ)

TCSI (TW)

SECTION 16: Other information

Revision Date 10-Feb-2021 Issuing date 10-Feb-2021

Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard 2 Fire Hazard 3 Reactivity 2

HMIS (Hazardous Material Information System)

Health Hazard 2
Flammability 3
Physical Hazard 2

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.

Emergency telephone number 14 / 15



Propionaldehyde 10640

Version / Revision

6.02

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.og.com).

The use of a comma in section 3 and section 7 to 12 is the same as a period.

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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