

SECTION 1: Identification

1.1 Identification

Product form	:	Substance
Substance name	:	Paraldehyde
CAS No	:	123-63-7
EC/ List No	:	204-639-8
Formula	:	C ₆ H ₁₂ O ₃
Molecular weight	:	132.20 g/mol
Synonyms	:	Acetaldehyde trimer Paracetaldehyde, 2,4,6-trimethyl-1,3,5-trioxane

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

Use of the substance/mixture	:	Chemical intermediate
Relevant identified uses	:	Intermediate
Uses advised against:	:	Not known

1.3 Details of the supplier of the safety data sheet

Godavari Biorefineries Ltd.
45/47, Somaiya bhavan,
Mahatma Gandhi Road,
Fort, Mumbai -400001, INDIA.
T 0091 22 22048272
Email: alka@somaiya.com
www.somaiya.com

1.4 Emergency telephone Number

Emergency number	:	0091 2423 279308 0091 22 22048272 (Monday – Friday - 09.30 hrs to 18.00 hrs)
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SECTION 2: Hazard(s) identification

GHS classification

2.1 Classification of the substance or mixture

Flammable liquids Category 3	:	H226 Flammable liquid and vapour
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2.2 GHS labeling

Hazard pictograms (GHS)



GHS02

Signal word (GHS)

:

Warning

Hazard statements (GHS)

:

H226 - Flammable liquid and vapor

Precautionary statements (GHS)

:

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.

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

2.3 Other hazards

Toxic to terrestrial vertebrates

Other hazards not contributing to the Classification : None.

2.4 Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/Information on ingredients

3.1 Substance

Substance type : Mono-constituent

Name	Product Identifier CAS No. EC No. Index No.	Concentration %	GHS Classification
Paraldehyde	123-63-7 204-639-8 605-004-00-1	Minimum 99%	Flam. Liq. 3, H226

Full text of hazard classes and H-statements : see section 16

3.2 Mixture

Not Applicable.

SECTION 4: First aid measures

4.1 Description of first aid measures

- First-aid measures general : Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
- First-aid measures after inhalation : If breathed in, move person into fresh air. Consult a physician after significant exposure.
- First-aid measures after skin contact : If skin irritation persists, call a physician. After contact with skin, wash immediately with plenty of soap and water at least 15 min.
- First-aid measures after eye contact : Call a physician immediately. Rinse immediately with plenty of water at least 15 min, also under the eyelids.
- First-aid measures after ingestion : Do not induce vomiting without medical advice. Immediately give large quantities of water to drink. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : No data available
- Symptoms/injuries after skin contact : Non-irritant.
- Symptoms/injuries after eye contact : Irritation of the eye tissue. Permanent eye damage.
- Symptoms/injuries after ingestion : Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
- Chronic symptoms : No additional information available.

4.3 Indication of any immediate medical attention and special treatment needed

Seek medical assistance.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Dry powder, Foam, Water spray, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : No data available

PARALDEHYDE

Safety Data Sheet

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

5.2 Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD. Flammable. Gas/vapor flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks
- Explosion hazard : DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks
- Reactivity : On heating: release of corrosive/combustible gases/vapours (decomposed to acetaldehyde/ acetic acid)
Upon combustion: CO and CO₂ are formed. Violent to explosive reaction with many compounds e.g.: with (strong) oxidizers:

5.3 Advice for firefighters

- Firefighting instructions : Wear self-contained breathing apparatus for firefighting if necessary
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

5.4 Additional information

Be Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

- Protective equipment : Gas-tight chemical suit.. Refer "Material-Handling" to select protective clothing.
- Emergency procedures : Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop nearby engines and no smoking. No naked flames or sparks. Use Spark- and explosion-proof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes. Take precautionary measures against static discharges.

For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Stop leak if safe to do so. Ventilate area.

6.2 Environmental precautions

Prevent product from entering drains. Should not be released into the environment.

6.3 Methods and material for containment and cleaning up

- For containment : Contain released substance, transfer (pump) into suitable containers. Use compatible material of containers. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute combustible/toxic gases/vapours with water spray. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
- Methods for cleaning up : Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite, powdered limestone. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/ authorized disposal facility. Wash clothing and equipment after handling.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling	:	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosion proof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation. Exhaust gas must be neutralized. Wear personal protective equipment/face protection. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Temperature class	:	T3

7.2 Conditions for safe storage, including any incompatibilities

Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) bases. metals. alcohols. amines. water/moisture.
Storage area	:	Keep container tightly closed. Store in a dry area. Ventilation at floor level. Keep out of direct sunlight. Fireproof storeroom. Keep locked up. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packaging in solid containers.

7.3 Specific end uses

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits:

Paraldehyde (123-63-7)

ACGIH	:	ACGIH TWA (ppm)	No data available.
ACGIH	:	ACGIH STEL (ppm)	
OSHA	:	OSHA PEL (TWA) (mg/m ³)	
OSHA	:	OSHA PEL (TWA) (ppm)	
IDLH	:	US IDLH (ppm)	
NIOSH	:	NIOSH REL (TWA) (mg/m ³)	
NIOSH	:	NIOSH REL (TWA) (ppm)	
NIOSH	:	NIOSH REL (STEL) (mg/m ³)	
NIOSH	:	NIOSH REL (STEL) (ppm)	

PARALDEHYDE






Safety Data Sheet

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

8.2 Exposure controls

- Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled safely. Ensure adequate ventilation, especially in confined areas.
- Personal protective equipment :
- 




- Protective goggles. Gloves. Protective clothing. Face shield. Gas mask with filter.
- Materials for protective clothing : GIVE EXCELLENT RESISTANCE: butyl rubber. polyethylene/ethylene vinyl alcohol. viton. GIVE GOOD RESISTANCE: neoprene. GIVE LESS RESISTANCE: natural rubber. PVC. GIVE POOR RESISTANCE: polyethylene. PVA.
- Hand protection : Gloves.
- Eye/face protection : Tightly fitting safety goggles.

8.2.2 Personal protective equipment:

- Hand protection: : Suitable material: Nitrile rubber Break through time : > 480 min Wear suitable gloves. Take note of the information given by the producer concerning.
- Body protection: : Choose body protection according to the amount and concentration of the dangerous substance at the work place. No special protective equipment.
- Respiratory protection : In the case of vapour formation use a respirator with an approved filter. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- Thermal hazard protection : None.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : Liquid
- Colour : Colourless
- Odour : Sweet
- pH : No Data Available
- Melting point : 12 °C
- Freezing point : No Data Available
- Initial boiling point/boiling range : 123 - 124 °C at 1013 hPa
- Flash Point : 24 °C – closed cup
- Relative evaporation rate : No Data Available
- Relative density : 0.994 g/ml at 20 °C
- Relative vapour density at 20°C : 5.3
- Specific gravity/ density : 0.994 g/ml at 20° C
- Molecular mass : 132.20 g/mol
- Flammability(Solid, Gas) : No data available
- Upper/lower flammability or Explosive limit : No Data Available
- Solubility : Easily soluble in methanol, diethyl ether, acetone. Partially soluble in cold water
- Vapour pressure : 13.33 hPa at 20° C
- Vapour density : No Data Available

PARALDEHYDE

Safety Data Sheet

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

Evaporation Rate	:	No Data Available
Partition coefficient n-octanol/water	:	log Pow: 0.50 - 0.95
Auto-ignition temperature	:	238°C (460.4 °F)
Decomposition temperature	:	No Data Available
Viscosity	:	1.31 mPa.s (20°C)
Explosive Limits	:	1.3 -17% (V)

9.2 Other information

No Data Available.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	No Data Available
10.2 Chemical Stability	:	Stable under recommended storage conditions
10.3 Possibility of hazardous reactions	:	No Data Available
10.4 Conditions to avoid	:	Keep away from heat and sources of ignition
10.5 Incompatible materials	:	Oxidizing agents, Peroxides, Acids and bases
10.6 Hazardous decomposition products	:	Carbon dioxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral)	:	Not classified (Conclusive but not sufficient for classification)
Acute toxicity (dermal)	:	Not classified (Conclusive but not sufficient for classification)
Acute toxicity (inhalation)	:	Not classified (Lack of data)

PARALDEHYDE (123-63-7)

LD50 oral rat	:	2711 mg/kg OECD Guideline 401 and GLP
LD50 dermal rabbit	:	14000 mg/kg

Skin corrosion/irritation	:	Not irritating to skin (Conclusive but not sufficient for classification) pH: Not available
Serious eye damage/irritation	:	Not classified (Lack of data) pH: Not available
Respiratory or skin sensitisation	:	Not classified (Lack of data)
Germ cell mutagenicity	:	Not classified (Conclusive but not sufficient for classification)
Carcinogenicity	:	Not classified (Conclusive but not sufficient for classification)
Reproductive toxicity	:	Not classified (Lack of data)
STOT-single exposure	:	Not classified (Lack of data)
STOT-repeated exposure	:	Not classified (Lack of data)
Aspiration hazard	:	Not classified (Lack of data)

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties	:	No additional information available
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11.2.2. Other information

No additional information available.

PARALDEHYDE

Safety Data Sheet

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

SECTION 12: Ecological information

- Ecology - general : Not classified.
- Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of substances which may contribute to the greenhouse effect (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5/II.
- Ecology – water : Not classified.

		Toxicity to Fish	Toxicity to aquatic plants	Toxicity to aquatic invertebrates	Toxicity to Microorganisms
Species	:	Oncorhynchus mykiss (rainbow trout)	Pseudokirchnerie llasubcapitata	Daphnia magna	Pseudomonas putida
Value	:	LC50 : 1340 mg/l	No data	EC50 : 356 mg/l	>1000mg/l
Exposure time	:	96h	-	48h	18h

12.2 Persistence and degradability

No Data Available.

12.3 Bio accumulative potential

No Data Available.

12.4 Mobility in soil

No Data Available.

12.5 Results of PBT and vPvB assessment

No Data Available.

12.5 Other adverse effects

No Data Available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Product disposal : Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
- Packaging: : Dispose of as unused product.

SECTION 14 : Transport Information

Marine transport (IMDG)

- UN number : UN 1264
- Proper shipping name and description : Paraldehyde
- Class : 3
- Packaging group : III
- Hazard Identification Number : 3
- EmS code : F-E, S-D
- Marine pollutant : No

Air transport ICAO/IATA

- UN number : UN 1264

PARALDEHYDE

Safety Data Sheet

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

Proper shipping name and description : Paraldehyde
 Class : 3
 Packaging group : III
 Hazard Labels : 3
 Environmentally hazardous : No

Department of Transportation (DOT)

UN number : UN 1264
 Proper shipping name and description : Paraldehyde
 Class : 3
 Packaging group : III
 Reportable Quantity (RQ) : 1000 lbs
 Poison Inhalation Hazard : No
 Hazard labels (DOT) : 3 - Flammable liquid



SECTION 15: Regulatory information

15.1 National regulations

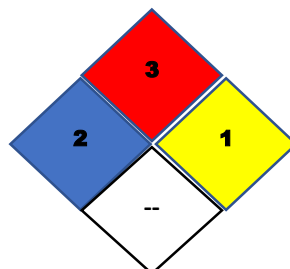
Country	National Inventories	Listing
AUSTRALIA	AICS	Listed
CANADA	DSL	Listed
CHINA	IECSC	Listed
EUROPE	EC	Listed
JAPAN	ENCS	Listed
NEWZEALAND	NZIoC	Listed
PHILIPPINES	PICCS	Listed
SOUTH KOREA	KECI	Listed
TAIWAN	TCSI	Listed
USA	TSCA	Listed

SECTION 16: Other information

16.1 Hazard Statement

H226 : Flammable liquid and vapour.

16.2 NFPA Rating



PARALDEHYDE

Safety Data Sheet

Supersedes: 15/02/2022

Revision: 1.3

Revision date: 12/12/2023

16.3 Abbreviations and acronyms

- : PBT =Persistent Bioaccumulative and Toxic
- vPvB= Very Persistent and Very Bioaccumulative
- SCBA= Self Contained Breathing Apparatus
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit
- OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit
- OELTWA= Occupational Exposure Limit Time Weighted Averages
- IDLH= Immediately Dangerous to Life or Health
- UEL= Upper Explosive Limit
- LEL= Lower Explosive Limit
- RTECS= Registry of Toxic Effects of Chemical Substances
- NTP=National Toxicology Programm
- IARC= International Agency for Research on Cancer
- EPA=Environmental Protection Agency
- TSCA= Toxic Substances Control Act
- NFPA= National Fire Protection Association
- CSR=Chemical Safety Report
- BCF = Bio Concentration Factor
- DNEL = Derived No Effect Level
- PNEC = Predicted No Effect Concentration
- TLV = Threshold Limit Value
- ACGIH = American Conference of Governmental Industrial Hygienist
- REACH = Registration, Evaluation .Authorisation and Restriction of Chemicals
- CLP = Classification, Labelling and Packaging
- LD / LC = Lethal Doses / Lethal Concentration
- GHS = Globally Harmonised System
- ADR = Accord europeen relative au transport international de marchandises
- IMDG-Code = International Maritime Code for Dangerous Goods
- EmS = Emergency measures on Sea
- ICAO = International Civil Aviation Organization
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation

16.4 Further information:

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