

Propionic anhydride Safety Data Sheet According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

| Date of Revision: January 31, 2024Revision due date: December 2026Revision Number: 02Version Name: 1035Gj Ghs02 Div.01 sds Propionic anhydrideSupersedes date: February 06, 2021Supersedes version: 1035Gj Ghs01 Div.01 sds Propionic anhydride | Date of Compilation | : June 04, 2020 |
|---|---------------------|---|
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING

| 1.1 Product lo | lentifier |
|--------------------|---|
| Product name | : Propionic anhydride |
| CAS RN | : 123-62-6 |
| EC# | : 204-638-2 |
| Synonyms | : Methylacetic anhydride; Propanoic anhydride; Propanoyl propanoate; Propionic acid |
| | anhydride; Propionyl anhydride; Propionyl oxide |
| Technical name | : Methylacetic anhydride |
| Molecular formula | : C ₆ H ₁₀ O ₃ |
| Structural formula | : |
| | 0 0 |



Relevant identified uses: It is used in the preparation of Agrochemicals, Dyes, Pharmaceuticals, fragrance chemicals, food flavors, lubricants & printing inks.

Uses advised against: None

1.3. Details of the supplier of the safety data sheet

Jubilant Ingrevia Limited

FACTORY & REGISTERED OFFICE:

Jubilant Ingrevia Limited., Bhartiagram, Gajraula, District: Amroha, Uttar Pradesh-244223, India T +91-5924-267437 & +91-5924-267438

HEAD OFFICE: Jubilant Ingrevia Limited, Plot 1-A, Sector 16-A, Institutional Area, Noida, Uttar Pradesh, 201301 – India T +91-120-4361000 - F +91-120-4234881 / 84 / 85 / 87 / 95 / 96 <u>support@jubl.com</u> - <u>www.jubilantingrevia.com</u>

1.4. Emergency telephone number

For Chemical Emergency ONLY (in the case of fire, leak, spill, exposure or accident) Call Chemtrec: 1-800-424-9300 (US), 1-703-527-3887 (Outside U.S.) Chemtrec (India) : 000-800-100-7141

For ALL other emergencies call Emergency Control Room Gajraula at 99970 22412

SECTION 2: HAZARD(S) IDENTIFICATION

2.1 Classification of the substance or mixture

GHS-US classification Flammable liquids : Hazard category: 4 Jubilant Ingrevia Limited



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Skin corrosion / irritation: Hazard category: 1B Eye damage/irritation: Hazard category: 1

2.2 Label Elements Pictograms: GHS05



Corrosion

Signal word: Danger!

Hazard and Precautionary Statements:

HAZARDSTATEMENTS

H227 Combustible liquid.

H314: Causes severe skin burns and eye damage.

PRECAUTIONARY STATEMENTS

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

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P264: Wash skin thoroughly after handling.

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

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].

P363: Wash contaminated clothing before reuse.

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

P310: Immediately call a POISON CENTER/doctor/...

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

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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

P405: Store locked up.

P501: Dispose of contents/container to local/regional/national/international regulations.

2.3 Other Hazards

Not known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| Substance | CAS Number | EC Number | Index number | Assay/Purity |
|------------------------|------------|-----------|--------------|--------------|
| Propionic anhydride | 123-62-6 | 204-638-2 | 607-010-00-X | 98.5% (min.) |

3.2 Mixtures



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

• Not applicable.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

- General advice: Consult a physician if necessary. Never give anything by mouth to an unconscious person.
- If inhaled: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
- In case of skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated

clothing and shoes. Get medical attention immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

- In case of eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.
- If swallowed: Call a physician or poison control center immediately. Do NOT induce vomiting. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than the hips to help prevent aspiration.
- 4.2. Most important symptoms and effects, both acute and delayed:

Symptoms: Causes serious eye damage. Causes severe burns

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians: No specific antidote. Treat symptomatically.

Basic treatment: Establish a patient airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist respirations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary.... Monitor for shock and treat if necessary.... For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport.... Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Activated charcoal is not effective ... Do not attempt to neutralize because of exothermic reaction. Cover skin burns with dry, sterile dressings after decontamination... /Organic acids and related compounds/

Advanced treatment: Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious, has severe pulmonary edema, or is in severe respiratory distress. Early intubation, at the first sign of upper airway obstruction, may be necessary. Positive-pressure ventilation techniques with a bag valve mask device may be beneficial. Consider drug therapy for pulmonary edema.... Consider administering a beta agonist such as albuterol for severe bronchospasm.... Monitor cardiac rhythm and treat arrhythmias as necessary.... Start IV administration of D5W /SRP: "To keep open", minimal flow rate/. Use 0.9% saline (NS) or lactated Ringer's (LR) if signs of hypovolemia are present. For hypotension with signs of hypovolemia, administer fluid cautiously. Consider vasopressors if patient is hypotensive with a normal fluid volume. Watch for signs of fluid overload.... Use proparacaine hydrochloride to assist eye irrigation... /Organic acids and related compounds/

SECTION 5: FIRE-FIGHTING MEASURES



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

5.1 : Extinguishing media

Suitable extinguishing media: Carbon dioxide (CO2) Dry chemical Alcohol-resistant foam

Unsuitable extinguishing media: Water.

5.2 : Special hazards arising from the substance or mixture

Specific hazards: Water may be ineffective. The product will float on water and can be reignited on surface water.

Hazardous combustion products: During a fire, smoke may contain carbon dioxide, carbon monoxide which may be toxic and/ or irritating.

5.3 : Advice for firefighters

Wear an approved positive pressure self-contained breathing apparatus in addition to standard firefighting gear. Additional Information - Combustible liquid and vapor. Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 : Personal precautions, protective equipment and emergency procedures

Personal precautions: Evacuate personnel to safe areas. Control access to area. Use personal protective equipment. Local authorities should be advised if significant spillages cannot be contained.

6.2 : Environmental precautions

Prevent further leakage or spillage if safe to do so. Use appropriate container to avoid environmental contamination. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. If the product contaminates rivers and lakes or drains inform respective authorities. If the spill area is porous, the contaminated material must be collected for subsequent treatment or disposal.

6.3 : Methods and materials for containment and cleaning up

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). After cleaning, flush away traces with water. Eliminate all ignition sources if safe to do so.

6.4 : Reference to other sections

Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

SECTION 7: HANDLING AND STORAGE

7.1 : Precautions for safe handling

Safe Handling:

- Wash hands before breaks and immediately after handling the product.
- Remove and wash contaminated clothing before re-use.
- Use only clean equipment.
- Avoid contact with skin, eyes and clothing.
- Do not breathe dust, spray or mist.



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

- Wear personal protective equipment. For personal protection see section 8.
- Provide appropriate exhaust ventilation.
- Take measures to prevent the build up of electrostatic charge.
- Keep away from fire (No Smoking). Keep away from fire, sparks and heated surfaces.
- Do not use sparking tools.

7.2 : Storage

- Keep upright in properly labelled containers.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage
- Keep containers tightly closed in a dry and well-ventilated place away from incompatible materials. (Contents may develop pressure if exposed to water).
- Outside or detached storage is preferred.

7.3 : Specific end use(s)

Not available

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 : Control parameters

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

: Exposure Limits Values

The following exposure limits is of Propionic acid

- NIOSH-The recommended airborne exposure limit is 10ppm averaged over a 10-h workshift and 15ppm, not to be exceeded during any 15 min work period.
- ACGIH- The recommended airborne exposure limit is 10ppm averaged over an 8 hr workshift.

: Exposure Limits (International)

The following international exposure limits is of Propionic acid

Australia: 10 ppm, STEL 15 ppm (STEL deletion proposed) (1990); Federal Republic of Germany: 10 ppm, short-term level 20 ppm, 5 min, 8 times per shift (1991); Sweden: 10 ppm, short-term value 15 ppm, 15 min (1990); United Kingdom: 10 ppm, 10-min STEL 15 ppm (1991).

: Derived No-Effect-Levels (DNEL) Predicted No-Effect-concentration (PNEC)

• No Information available

8.2 : Exposure controls

General protective and hygiene measures

- Wear protective gloves/protective clothing/eye protection/face protection.
- The standard precautionary measures should be adhered to when handling
- Wash hands during breaks and at the end of handling the material
- Immediately remove any contaminated clothing

Appropriate Engineering Controls:



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

 Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product. Facilities storing or utilizing this material should be equipped with an eyewash fountain. Use adequate general and local exhaust ventilation to keep airborne concentrations low.

: Personal Protection

Eyes: Based on an evaluation of the eye or face hazards present, wear chemical splash-resistant safety glasses or goggles with side protection. A face shield may be appropriate in some workplaces. Use eyewear tested and approved under appropriate government standards such as OSHA 29 CFR 1910.133 or EU EN166.

Hands: Wear gloves selected based on an evaluation of the possible hazards to hands and skin, the duration of use, the physical conditions of the workplace, and the chemical resistance and physical properties of the glove material.

Skin and body: Protective clothing must be selected based on the hazards present in the workplace, the physical environment, the duration of exposure, and other factors. No fabric can provide protection against all potential hazards; therefore it is important to select the appropriate protective clothing for each specific hazard. At the minimum, wear a laboratory coat and close-toed footwear.

Respiratory: Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

- : Occupational hygiene
- No data available.
- : Additional Information
- No data available.
- : Control of environmental exposure
- Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 : Information on basic physical and chemical properties.

| Sr. No. | Parameter | Typical value |
|--------------------------|--|--|
| 1. | Appearance | Clear colorless liquid |
| 2. | Molecular weight | 130.14 |
| 3. | Odor | Strong vinegar like,Pungent |
| 4. | Odor Threshold | No information available |
| 5. | рН | 2.5 (100 g/l aq. Sol) |
| 6. | Melting point | -45 °C |
| 7. | Boiling point | 167-170°C |
| 8. | Flash point | 63 °C |
| 9. | Evaporation rate (n-BuAc=1) | Not determined |
| 10. | Flammability (solid/gas) | Non Flammable |
| 11. | Upper/lower flammability or Explosive limits | Lower Explosive Limit (LEL): 1.48 %(V) Upper Explosive Limit (UEL): 11.9 %(V) |
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| Sr. No. | Parameter | Typical value |
|---------|--|---|
| 12. | Vapor pressure | 1.33 mbar (70 °F / 21 °C) |
| 13. | Relative Vapour density | 4.5 |
| 14. | Density | 1.007 (24 °C) |
| 15. | Solubility | May react violently with water (Hydrolysed in water to give Propionic acid), Soluble in methanol, ethanol,chloroform,ether. |
| 16. | Partition coefficient (Octanol /water) | 0.33 (68 °F / 20 °C) |
| 17. | Auto-ignition temperature | 545 °F / 285 °C |
| 18. | Decomposition temperature | Method: DTA, No exotherm to boiling |
| 19. | Viscosity | Viscosity, dynamic : 1.039 mPa.s (77 °F / 25 °C) Viscosity, kinematic : 1.028 mm2/s (77 °F / 25 °C) |
| 20. | Explosive property | Above 63 °C explosive vapour/air mixtures may be formed. |
| 21. | Oxidizing property | Not oxidizing |

9.2 : Other information

• Surface tension 30 mN/m at 25 °C

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity: Water reactive, PROPIONIC ANHYDRIDE reacts exothermically with water. The reactions are . .
 - . sometimes slow, but can become violent when local heating accelerates their rate. Acids accelerate the reaction . with water.
- **10.2** Chemical stability: Stable under normal storage conditions
- **10.3 Possibility of hazardous reactions:** None under normal conditions of storage and use.
- 10.4 **Conditions to avoid:** Incompatible materials, Heat, Flames and sparks.
- 10.5 **Incompatible materials**: Reacts violently with acids, bases and oxidants causing fire and explosion hazard.
- **10.6** Hazardous décomposition Products : Carbon monoxide, Carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 : Information on toxicological effects

Acute Toxicity:

Acute oral toxicity: LD50 Oral (Rat): 3,455 mg/kg Remarks: Read-across from a similar material

Acute inhalation toxicity: LC50 (Rat) : > 19.7 mg/l

Exposure time: 1 h Assessment, Remarks: Read-across from a similar material

Acute oral toxicity : LD50 Oral (Rat): 2360 mg/kg

Acute dermal toxicity : LC50 (Rat, Male and Female): 10200 mg/kg

The substance or mixture has no acute inhalation toxicity.

Skin irritation/corrosion : Causes burns

Species : Rabbit, Exposure time : 24 h, Assessment : Causes burns

Eye damage/irritation: Causes serious eye damage.



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Species : Rabbit, Result : Risk of serious damage to eyes, Exposure time : 24 h Assessment : Corrosive Remarks : Read-across from a similar material **Respiratory or skin sensitization**: Not classified based on available information. Test Type : Skin Sensitization, Species : Guinea pig, Result : non-sensitizing Remarks : Read-across from a similar material **Germ cell mutagenicity**: Not classified based on available information. **Genotoxicity in vitro** : Test Type: Salmonella typhimurium assay (Ames test), Metabolic activation: +/activation Method: Bacterial Reverse Mutation Assay, Result: negative Remarks: Read-across from a similar material **Genotoxicity in vivo** : Species: Hamster, Application Route: intraperitoneal injection, Method: Mammalian Erythrocyte Micronucleus, Test Result: negative Remarks: Read-across from a similar material

Carcinogenicity: Not classified based on available information.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP

Reproductive toxicity: Not classified based on available information.

Remarks: No data available.

Specific target organ system toxicity - repeated exposure: Not classified based on available information. Remarks: No data available.

Specific target organ system toxicity - single exposure: Not classified based on available information. Remarks: No data available.

Aspiration hazard: No aspiration toxicity classification.

Additional information:

Information on likely routes of exposure

Product:

Inhalation : Remarks: Sore throat. Cough. Burning sensation. Shortness of breath. Symptoms may be delayed.

Skin contact : Remarks: Pain, Causes severe skin burns.

Eye contact : Remarks: Redness. Pain. Severe burns..

Ingestion : Remarks: Burning sensation. Sore throat. Abdominal pain. Shock or collapse.

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

- 12.1 : Toxicity
 - Toxicity to fish : LC50 (golden orfe): > 10,000 mg/l



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Exposure time: 96 h Remarks: Read-across from a similar material

- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 500 mg/l Exposure time: 48 h Remarks: Read-across from a similar material
- Toxicity to algae : EC50 (Scenedesmus subspicatus): > 500 mg/l Remarks: Read-across from a similar material.

12.2 : Persistence and degradability

| Propionic anhydride | |
|-------------------------------|--|
| Persistence and degradability | Readily biodegradable |
| | Propionic anhydride rapidly hydrolyses to propionic acid in contact with |
| | water. Therefore data for biodegradation is based upon studies with |
| | propionic acid. Propionic acid is readily biodegradable |

12.3 : Bio accumulative potential

| Propionic anhydride | |
|----------------------------|--|
| | 4.226 (Bio concentration factor) (Estimated) |
| Bio accumulative potential | Bioaccumulation is unlikely. |
| Log Kow | 0.33 (68 °F / 20 °C) |

12.4 : Mobility in Soil

| Propionic anhydride | |
|-------------------------------------|---|
| Soil Adsorp. Coeff. (Estimated Koc) | Soil adsorption and mobility of propionic anhydride are not expected to be important environmental fate processes due to the rapid hydrolysis to propionic acid under aqueous conditions |
| Henry's Law Constant | Not available |

12.5 : Other adverse effects

• Results of PBT and vPvB assessment: Not fulfilling vPvB (very persistent, very bioaccumulative) criteria.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 : Disposal of waste

- **Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.
- Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

 This substance is considered to be Hazardous for transport by Air/ Rail/ Road and Sea and thus regulated by IATA/ ICAO/ US DOT/ IMO/ IMDG.



14.6 Special instructions for user.

• The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations

14.7. Transport in bulk according to Annex II of Marpol and IBC code

Not available

SECTION 15: REGULATORY INFORMATION

Classification as per CLP Regulation 1272/2008:

Skin corrosion / irritation: Hazard category: 1B Eye damage/irritation: Hazard category: 1 Hazard Statements: H314

| Chemical Inventory Lists: | Status |
|--|--------------|
| TSCA: | Listed |
| EC Inventory | 204-638-2 |
| Canada(DSL/NDSL): | Listed (DSL) |
| Taiwan Chemical Substance Inventory (TCSI) | Listed |
| New Zealand Inventory of Chemicals (NZIoC) | Listed |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS) | Listed |
| Inventory of Existing and New Chemical Substances (ENCS) | Listed |
| Japan ISHL Existing Substances List (ISHL) | Listed |
| China: IECSC | Listed |

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According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

| Catalog of Hazardous chemical(2015) China | Listed |
|--|--------|
| Existing Chemicals List (KECI) | Listed |
| Australian Inventory of Chemical Substances (AICS) | Listed |

SECTION 16: OTHER INFORMATION

a) : Compilation information of safety data sheet

| Date of Compilation | : June 04, 2020 |
|---------------------|---|
| Date of Revision | : January 31, 2024 |
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b) A key or legend to aberrations and acronyms used in the safety data sheet

| 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. |
| RTECS | = Registry of Toxic Effects of Chemical Substances. |
| IARC | = International Agency for Research on Cancer. |
| TSCA | = Toxic Substances Control Act. |
| DSL/NDSL | = Domestic/Non-Domestic Substances List. |
| TLV | = Threshold Limit Value. |
| ACGIH | = American Conference of Governmental Industrial Hygienists. |
| REACH | = Registration, Evaluation .Authorization and Restriction of Chemicals. |
| CLP | = Classification, Labeling and Packaging. |
| GHS | = Globally Harmonized System. |
| IMDG-Code | International Maritime Code for Dangerous Goods. |
| ICAO | = International Civil Aviation Organization. |
| IATA/DGR | = International Air Transport Association/Dangerous Goods Regulation. |
| | |

c) Key Literature reference and sources for data

Biographical reference and data sources

- Globally Harmonized System of Classification and Labelling of Chemicals.
- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009
- REG (EC) no. 1907/2006, last modification by REG (EC) Nr. 830/2015

d) List of hazard statements



According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

| Hazards StatementsH227 Combustible liquid. H314: Causes severe skin burns and eye damage. |
|--|
|--|

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

(End of Safety Data Sheet)