Chemical Safety Data Sheet MSDS / SDS

Propionic anhydride SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Propionic anhydride

CAS: 123-62-6

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

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SECTION 2: Hazards identification

Classification of the substance or mixture

Skin corrosion, Sub-category 1B

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H314 Causes severe skin burns and eye damage

Precautionary statement(s)

Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash ... thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Propionic anhydride
Common names and synonyms:	Propionic anhydride
CAS number:	123-62-6
EC number:	204-638-2
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

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. Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Inhalation causes irritation of eyes and respiratory tract. Contact with liquid causes burns of eyes and skin. Ingestion causes burns of mouth and stomach. (USCG, 1999)

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

First aid: Inhalation exposure: Fresh air, rest. Artificial respiration if indicated. Refer for medical attention. Skin exposure: Remove contaminated clothes. Rinse skin with plenty of water or shower. Eye exposure: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. Ingestion exposure: Rinse mouth. Do NOT induce

vomiting. Give plenty of water to drink. Refer for medical attention. from table

SECTION 5: Firefighting measures

Suitable extinguishing media

Use water spray, dry chemical, "alcohol resistant" foam, or carbon dioxide. Use water spray to keep fire-exposed containers cool. Hazardous reactions may be avoided by using large quantities of water to solubilize the anhydride & fully absorb the heat of reaction.

Specific hazards arising from the chemical

Excerpt from ERG Guide 156 [Substances - Toxic and/or Corrosive (Combustible / Water-Sensitive)]: Combustible material: may burn but does not ignite readily. Substance will react with water (some violently) releasing flammable, toxic or corrosive gases and runoff. When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapors may travel to source of ignition and flash back. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water. (ERG, 2016)

Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit and face shield. Collect leaking liquid in sealable containers. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: chemical protection suit and face shield. Collect leaking liquid in sealable containers. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Spill or leak procedures: 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. Neutralize spill and washings with soda ash or lime.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Above 63°C use a closed system and ventilation. 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.

Conditions for safe storage, including any incompatibilities

Dry. Ventilation along the floor. Separated from bases, oxidants and food and feedstuffs.Separated from acids, bases, oxidants, food and feedstuffs. Dry. Ventilation along the floor.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

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.

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

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

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:	Propionic anhydride is a colorless liquid with a pungent odor. Flash point 165°F. Density 8.4 lb /gal. Corrosive to metals and tissue.
Colour:	Colorless liquid
Odour:	Very rancid odor
Melting point/freezing point:	13°C(lit.)
Boiling point or initial boiling point and boiling range:	168°C
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	Lower- 1.5% @ 165 deg F (74 deg C); upper- 11.9% @ 261 deg F (127 deg C)
Flash point:	66°C
Auto-ignition temperature:	545° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	1.144 cP at 20 deg C; 0.978 cP at 30 deg C; 0853 cP at 40 deg C; 0.7511 cP at 50 deg C
Solubility:	Decomposed by water; soluble in methanol, ethanol, ether and chloroform

Partition coefficient n-octanol/water:	log Kow = 0.40 (est)
Vapour pressure:	10 mm Hg (57.7 °C)
Density and/or relative density:	1.015
Relative vapour density:	4.5 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on contact with water. This produces corrosive propionic acid. Reacts violently with bases and oxidants. This generates fire and explosion hazard.

Chemical stability

no data available

Possibility of hazardous reactions

Combustible liquidThe vapour is heavier than air.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. Incompatible with acids, strong oxidizing agents, alcohols, amines, and bases.

Conditions to avoid

no data available

Incompatible materials

The substance decomposes on contact with water producing corrosive propionic acid. Reacts violently with acids, bases and oxidants causing fire and explosion hazard.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 2360 mg/kg

Inhalation: no data available

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 data available

STOT-single exposure

The substance is corrosive to the eyes, skin and respiratory tract. Inhalation of the vapour or aerosol may cause lung oedema. See

Notes. Corrosive on ingestion. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

no data available

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

Biodegradation is not expected to be an important environmental fate process due to the rapid hydrolysis of propionic anhydride under aqueous conditions(1-2). Propionic anhydride, present at 100 mg/L, reached 83% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(3), however it is believed that this biodegradation measurement was of the acid(SRC).

Bioaccumulative potential

Bioconcentration of propionic anhydride is not expected to be an important environmental fate process due to the rapid hydrolysis to propionic acid under aqueous conditions(1-2).

Mobility in soil

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(1-2).

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

ADR/RID: UN2496 (For reference only, please check.)
IMDG: UN2496 (For reference only, please check.)
IATA: UN2496 (For reference only, please check.)

UN Proper Shipping Name

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

Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.)
IMDG: 8 (For reference only, please check.)
IATA: 8 (For reference only, please check.)

Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)
IATA: III (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.