Chemical Safety Data Sheet MSDS / SDS

Acetyl chloride 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: Acetyl chloride

CAS: 75-36-5

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

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SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable liquids, Category 2
Skin corrosion, Sub-category 1B

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour
H314 Causes severe skin burns and eye damage

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/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash ... thoroughly after handling.

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.
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

P403+P235 Store in a well-ventilated place. Keep cool.
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:	Acetyl chloride
Common names and synonyms:	Acetyl chloride
CAS number:	75-36-5
EC number:	200-865-6
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. 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 nothing to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Vapor irritates mucous membranes. Ingestion of liquid or contact with eyes or skin causes severe irritation. (USCG, 1999)

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

Basic treatment: Establish a patent airway. 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 normal saline 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

SECTION 5: Firefighting measures

Suitable extinguishing media

Evacuate surrounding area.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: When heated to decomposition, hydrogen chloride and phosgene, extremely poisonous gases, are evolved. Behavior in Fire: Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. (USCG, 1999)

Special protective actions for fire-fighters

Use powder, carbon dioxide. NO hydrous agents, water. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT wash away into sewer. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Cover any spills with sufficient amt of sodium bicarbonate. Remove the mixture in a container such as a fiber drum, plastic bag or carton box for easy disposal in an incinerator, and dispose by burning in a furnace. Wash the spilled spot thoroughly with water.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with hot surfaces. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. 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

Fireproof. Separated from incompatible materials. See Chemical Dangers. Dry. Well closed.Separate from alcohols, alkalies, amines, and strong oxidizing materials. Store in a cool, dry well-ventilated location. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage warehouse, room, or cabinet.

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 safety spectacles, face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use breathing protection. Use closed system or ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Liquid.
Colour:	Colourless.
Odour:	Pungent odor
Melting point/freezing point:	-112 °C.
Boiling point or initial boiling point and boiling range:	51 °C. Atm. press.:1 013 mBar.
Flammability:	Highly flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit/flammability limit:	no data available
Flash point:	-12 °C. Atm. press.: 1 013.3 hPa.
Auto-ignition temperature:	360 °C. Atm. press.: 102.9 - 103.7 kPa.
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Reaction (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = -0.47.
Vapour pressure:	309 mBar. Temperature: 20 °C.; 982 mBar. Temperature: 50 °C.
Density and/or relative density:	1.1 g/cm3. Temperature: 20 °C.
Relative vapour density:	2.7 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating and on burning. This produces toxic and corrosive fumes including hydrogen chloride (see ICSC 0163) and phosgene (see ICSC 0007). Reacts violently with water, alcohols, acids, bases, certain powdered metals and many other compounds. This generates fire and explosion hazard. Attacks many metals in the presence of water. Products of hydrolysis in water include corrosive hydrochloric acid and acetic acid.

Chemical stability

Readily hydrolyzes to form hydrogen chloride & acetic acid

Possibility of hazardous reactions

DANGEROUS, WHEN EXPOSED TO HEAT OR FLAME. ...The vapour is heavier than air and may travel along the ground; distant ignition possible.ACETYL CHLORIDE reacts violently with water, steam, methanol or ethanol to form hydrogen chloride and acetic acid. Reacts vigorously with bases, both organic and inorganic. Incompatible with oxidizing agents and alcohols. Produces highly toxic fumes of phosgene gas and chlorine when heated to decomposition [Sax, 9th ed., 1996, p. 35]. Reaction in a confined space with even a small amount of water may cause a violent eruption of gases [Bretherick, 5th ed., 1995, p. 281]. Vapor forms an explosive mixture with air [Kirk-Othmer, 3rd ed., Vol. 1, 1978, p. 162]. Polymerization reaction with dimethyl sulfoxide is particularly violent [Buckley, A., J. Chem. Ed., 1965, 42, p. 674]. May react vigorously or explosively if mixed with diisopropyl ether or other ethers in the presence of trace amounts of metal salts [J. Haz. Mat., 1981, 4, 291].

Conditions to avoid

no data available

Incompatible materials

Water reactive. Violent exothermic decomposition with water produces corrosive hydrochloric and acetic acids. Reacts violently with alcohols, alkalies, amines, and strong oxidizing materials.

Hazardous decomposition products

May decompose during preparation. ... when heated to decomposition, emits highly toxic fumes of phosgene and hydrogen chloride (cl-).

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat - 910 mg/kg bw.

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

CLASSIFICATION: D; not classifiable as to human carcinogenicity. BASIS FOR CLASSIFICATION: No human data or animal data. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: None.

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes and skin. The vapour is severely irritating to the eyes and respiratory tract. Corrosive on ingestion. Exposure at high concentrations could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause lung oedema, but only after initial corrosive effects on the eyes and the upper respiratory tract have become manifest. The effects may be delayed. See Notes. Medical observation is indicated.

STOT-repeated exposure

Repeated or chronic inhalation of the vapour may cause chronic inflammation of the upper respiratory tract. Repeated or prolonged inhalation of high concentrations may cause effects on the lungs.

Aspiration hazard

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

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Pimephales promelas - 42 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 65 mg/L - 48 h.

Toxicity to algae: EC50 - Navicula seminulum - 73.4 mg/L - 96 h.

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

Acetyl chloride will decompose violently in water(1) forming acetic acid and hydrochloric acid(2). Because of its short half-life in water, bioconcentration of acetyl chloride in aquatic organisms is very unlikely(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for acetyl chloride can be estimated to be 2(SRC). According to a classification scheme(2), this estimated Koc value suggests that acetyl chloride is expected to have very high mobility in soil. However, in view of its violent decomposition in the presence of water(3) and the high reactivity of this compound towards molecules with active hydrogen groups such as natural products containing amine, phenol, and alcohol functional groups that occur in soil(4), it is unlikely that acetyl chloride would persist for long in moist soils(SRC).

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: UN1717 (For reference only, please check.)
IMDG: UN1717 (For reference only, please check.)
IATA: UN1717 (For reference only, please check.)

UN Proper Shipping Name

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

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.)

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.)

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.Do NOT use in the vicinity of a fire or a hot surface, or during

welding.

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