

Chemical Safety Data Sheet MSDS / SDS

Cumene SDS

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

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

Product name: Cumene

CAS: 98-82-8

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 3

Aspiration hazard, Category 1

Specific target organ toxicity - single exposure, Category 3
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H226 Flammable liquid and vapour
H304 May be fatal if swallowed and enters airways
H335 May cause respiratory irritation
H411 Toxic to aquatic life with long lasting effects

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/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

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+P316 IF SWALLOWED: Get emergency medical help immediately.
P331 Do NOT induce vomiting.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.
P391 Collect spillage.

Storage

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

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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: Cumene

Common names and synonyms: Cumene

CAS number: 98-82-8

EC number: 202-704-5

Concentration: 100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

Most important symptoms/effects, acute and delayed

Narcotic action with long-lasting effects; depressant to central nervous system. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aromatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

To fight fire, use foam, carbon dioxide, dry chemical.

Specific hazards arising from the chemical

Excerpt from ERG Guide 130 [Flammable Liquids (Water-Immiscible / Noxious)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

Special protective actions for fire-fighters

Use powder, AFFF, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. 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. Do NOT let this chemical enter the environment.

Environmental precautions

Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. 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. Do NOT let this chemical enter the environment.

Methods and materials for containment and cleaning up

Personal protection: filter respirator for organic gases and vapors adapted to the airborne concentration of the substance. 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. Do NOT let this chemical enter the environment.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 31 °C use a closed system, ventilation and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding). 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 strong oxidants and acids. Cool. Keep in the dark. Store only if stabilized. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing... Precautions ... such as mounds around storage tanks, sills at doorways or especially designed floors /are needed/ to limit spread of escaping liquid. Open flames & other sources of ignition should be excluded where cumene is stored.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 50 ppm as TWA.MAK: 50 mg/m³, 10 ppm; peak limitation category: II(4); skin absorption (H); carcinogen category: 3B; pregnancy risk group: C.EU-OEL: 100 mg/m³, 20 ppm as TWA; 250 mg/m³, 250 ppm as STEL; (skin)

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.

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:	Liquid.
Colour:	Clear liquid.
Odour:	Gasoline-like odor
Melting point/freezing point:	-96 °C.

Boiling point or initial boiling point and boiling range:	152.39 °C. Remarks:Atm. pressure in handbook.
Flammability:	Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 0.9% by volume; Upper flammable limit: 6.5% by volume
Flash point:	Ca. 31 °C.
Auto-ignition temperature:	424 °C. Atm. press.:1 010 hPa.
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	kinematic viscosity (in mm ² /s) = 0.74. Temperature:37.78°C. Remarks:Unit is reported to be centistokes, which is equal to mm ² /s.
Solubility:	Insoluble in water
Partition coefficient n-octanol/water:	log Pow = 3.55. Temperature:23 °C. Remarks:PH not reported.
Vapour pressure:	Ca. 4.96 hPa. Temperature:20 °C.
Density and/or relative density:	0.86 g/cm ³ . Temperature:20 °C.
Relative vapour density:	4.1 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

900 ppm [IDLH based on 10% of the lower explosive limit for safety considerations even though the relevant toxicological data

indicated that irreversible health effects or impairment of escape existed only at higher concentrations.]
Reacts violently with acids and strong oxidants. This generates fire and explosion hazard. The substance can form explosive peroxides.

Chemical stability

Volatile

Possibility of hazardous reactions

Flammable liquid. As a result of flow, agitation, etc., electrostatic charges can be generated. Mixing CUMENE in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid, nitric acid, oleum, NFPA 1991.

Conditions to avoid

no data available

Incompatible materials

Reacts with oxidizing materials. Reacts with nitric acid and sulfuric acid with release of energy.

Hazardous decomposition products

Hazardous decomposition products: Toxic gases and vapors (such as carbon monoxide) may be released.

SECTION 11: Toxicological information

Acute toxicity

Oral: approximate LD50 - rat (male) - 2 910 mg/kg bw.

Inhalation: LC0 - rat (male) - 22.1 mg/L air.

Dermal: LD50 - rabbit (male/female) - > 3 160 mg/kg bw.

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

Evaluation: No data were available from studies in humans. There is sufficient evidence in experimental animals for the carcinogenicity of cumene. There is sufficient evidence in experimental animals for the carcinogenicity of alpha-methylstyrene. Cumene is possibly carcinogenic to humans (Group 2B). alpha-Methylstyrene is possibly carcinogenic to humans (Group 2B).

Reproductive toxicity

No information is available on the reproductive or developmental effects of cumene in humans. Inhalation studies in rats and rabbits reported no significant adverse effects on reproduction or fetal development. No effects on sperm were observed in male rats exposed by inhalation.

STOT-single exposure

If swallowed the substance easily enters the airways and could result in aspiration pneumonitis. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause unconsciousness.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and upper respiratory tract. This substance is possibly carcinogenic to humans.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - *Cyprinodon variegatus* - 4.7 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 2.14 mg/L - 48 h.

Toxicity to algae: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - 2.01 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 2 000 mg/L - 3 h. Remarks: Respiration rate.

Persistence and degradability

AEROBIC: Isopropylbenzene biodegradation in batch reactors proceeded following about 144 hr of acclimation and after 120 hr, isopropylbenzene was non-detectable. In unacclimated cultures, the half-life of isopropylbenzene was 206 hr (62 hr after acclimation)(1). When isopropylbenzene was incubated with an activated sludge acclimated to benzene, the theoretical BOD was reduced by 37.8% after 192 hr(2). A 20-day biological oxygen demand study was conducted using unacclimated, settled, domestic wastewater as the inoculum. After 10 and 20 days, the theoretical BOD was 62% and 70%, respectively(3). Activated sludge acclimated to aniline degraded isopropylbenzene following an acclimation period of about 30 hr(4). Activated sludge samples from three different communities were able to degrade 50 mg/L isopropylbenzene(5). A biodegradation rate constant of 0.322/day was calculated when 0.235-0.571 g/cu m isopropylbenzene was added to soil microcosms from a weathered petroleum spill site(6).

Bioaccumulative potential

A BCF of 35.5 was measured in goldfish which were exposed to isopropylbenzene at 1 mg/L(1,2). According to a classification scheme(3), this BCF value suggests the potential for bioconcentration in aquatic organisms is moderate.

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of isopropylbenzene can be estimated to be 700(SRC). According to a classification scheme(2), this estimated Koc value suggests that isopropylbenzene is expected to have low mobility in soil. A Kd value of 0.374 was reported for isopropylbenzene added at 113.1 ug/L to an anaerobic microcosm using aquifer material from Canada Forces Base Borden(3).

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: UN1918 (For reference only, please check.)

IMDG: UN1918 (For reference only, please check.)

IATA: UN1918 (For reference only, please check.)

UN Proper Shipping Name

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

IMDG: ISOPROPYLBENZENE (For reference only, please check.)

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

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

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

Environmental hazards

ADR/RID: Yes

IMDG: Yes
IATA: Yes

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

Check for peroxides prior to distillation; eliminate if found. Do NOT take working clothes home.

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