Chemical Safety Data Sheet MSDS / SDS

Benzophenone 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: Benzophenone

CAS: 119-61-9

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

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

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H373 May cause damage to organs through prolonged or repeated exposure
H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.

Response

P319 Get medical help if you feel unwell.

Storage

none

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: Benzophenone

Common names and synonyms:	Benzophenone
CAS number:	119-61-9
EC number:	204-337-6
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

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.

Most important symptoms/effects, acute and delayed

Ingestion causes gastrointestinal disturbances. Contact causes eye irritation and, if prolonged, irritation of skin. (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. Ketones and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Flash point data for this chemical are not available, but it is probably combustible. (NTP, 1992)

Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. 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

Separated from strong oxidants. Store in an area without drain or sewer access.Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature -20 deg C.

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 goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state: Solid.

Colour:	Orthorhombic prisms from alcohol (alpha); monoclinic prisms (beta)
Odour:	Geranium-like odor
Melting point/freezing point:	65.88 °C. Atm. press.: 1 013 hPa. Remarks: MPBVP v1.43. Adapted Joback method.; 61.21 °C. Atm. press.: 1 013 hPa. Remarks: MPBVP v1.43. Gold and Ogle method.; 63.55 °C. Atm. press.: 1 013 hPa. Remarks: MPBVP v1.43. Joback; Gold, Ogle methods.
Boiling point or initial boiling point and boiling range:	299.49 °C. Atm. press.: Ca. 1 013 hPa. Remarks: MPBVP v1.43. Data generated using the adapted Stein and Brown method. Abient atmospheric pressure is assumed.
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	138 °C. Atm. press.: 1 013 hPa.
Auto-ignition temperature:	Remarks: The substance is reported to be a combustible and a flammable liquid above the melting point.
Decomposition temperature:	>320°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Insoluble (<1 mg/ml at 77° F) (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = 3.147. Temperature: 25 °C. Remarks: Data are estimated by calculation. KOWWIN v. 1.6.7. No temperature and pH are given. Neutral pH and ambient room temperature is assumed.
Vapour pressure:	0.003 hPa. Temperature: 25 °C.
Density and/or relative density:	1.111. Temperature: 18 °C.; 1.087. Temperature: 50 °C.
Relative vapour density:	4.21 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

On combustion, forms toxic gases. Reacts with strong oxidants. This generates fire and explosion hazard.
Decomposes on burning. This produces toxic fumes.

Chemical stability

no data available

Possibility of hazardous reactions

CombustibleKetones, such as BENZOPHENONE, are reactive with many acids and bases liberating heat and flammable gases (e.g., H2). The amount of heat may be sufficient to start a fire in the unreacted portion of the ketone. Ketones react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H2) and heat. Ketones are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides. They react violently with aldehydes, HNO3, HNO3 + H2O2, and HClO4. This compound can react with oxidizing materials. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Dust can form explosive mixture with air.

Hazardous decomposition products

When heated to decomp it emits acrid and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - mouse - ca. 2 895 mg/kg bw.

Inhalation: no data available

Dermal: LD50 - rabbit - 3 535 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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the skin.

STOT-repeated exposure

The substance may have effects on the liver and kidneys, resulting in impaired functions. Tumours have been detected in experimental animals but may not be relevant to humans.

Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Pimephales promelas - 15.3 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 6.784 mg/L - 48 h.

Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 3.5 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 787 mg/L - 3 h. Remarks:Respiration rate.

Persistence and degradability

AEROBIC: Benzophenone, present at 100 mg/L, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). In a separate screening test, benzophenone reached 12% of its theoretical BOD over an incubation period of 5 days using a sewage sludge inoculum(2). The removal of benzophenone from soil columns treated with feed solutions containing 5.8X10-5, 1.3X10-4, 1.1X10-4, and 2X10-3 ppm benzophenone was 15, 41, 45, and 40%, respectively(3). An increase in the column effluent concentration of benzophenone after mercuric chloride was added to the feed solution indicated that some biodegradation took place in the soil column(3).

Bioaccumulative potential

BCF values of 3.4-9.2 were measured using carp (Cyprinus carpio) which were exposed to benzophenone concentrations of 0.3 ppm over an 6-week period(1). According to a classification scheme(2), this BCF range suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Kd for benzophenone was measured to be 2.71 on a red earth soil from Australia with an organic matter content of 1.09%(1), corresponding to a Koc of about 430(SRC). The average Koc value from three soils was measured to be 517(2). According to a classification scheme(3), these Koc values suggest that benzophenone is expected to have moderate to low mobility in soil. Benzophenone was detected (concentration below 0.500 ug/L) in both the treated effluent applied at the top of a 2.4 m long, 32.5 cm diameter soil column and in the drainage collected from the bottom of the column after 23 days(4).

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: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (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

Not 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/