ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Acetophenone

Revision Date:2025-02-01 Revision Number:1

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

Product identifier

Product name	: Acetophenone
CBnumber	: CB5694882
CAS	: 98-86-2
EINECS Number	: 202-708-7
Synonyms	: Acetophenone,Acetophenon

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
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Eye irritation, Category 2

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour

H227 Combustible liquid

H301 Toxic if swalloed

H302 Harmful if swallowed

H311 Toxic in contact with skin

H315 Causes skin irritation

H319 Causes serious eye irritation

H331 Toxic if inhaled

H335 May cause respiratory irritation

H336 May cause drowsiness or dizziness

H351 Suspected of causing cancer

H370 Causes damage to organs

H373 May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)

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

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

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thouroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

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

P281 Use personal protective equipment as required.

P311 Call a POISON CENTER or doctor/physician.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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

P370+P378 In case of fire: Use … for extinction.

P405 Store locked up.

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

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

P501 Dispose of contents/container to.....

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

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

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

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Acetophenone
Synonyms	: Acetophenone,Acetophenon
CAS	: 98-86-2
EC number	: 202-708-7
MF	: C8H8O
MW	: 120.15

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

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. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

No toxicity expected from inhalation or ingestion except slight narcotic effect. Liquid can cause eye and skin irritation on contact. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

Call for medical aid. ... Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open, and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water, or milk.

SECTION 5: Firefighting measures

Extinguishing media

Extinguish with water, foam, dry chemical, carbon dioxide.

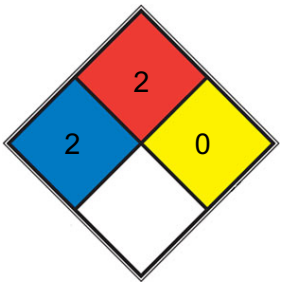
Specific Hazards Arising from the Chemical

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: 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. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)

Advice for firefighters

Use alcohol-resistant foam, powder, carbon dioxide.

NFPA 704



■	HEALTH	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. diethyl ether, ammonium phosphate, iodine)
■	FIRE	2	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely divided suspended solids that do not require heating before ignition can occur. Flash point between 37.8 and 93.3 °C (100 and 200 °F). (e.g. diesel fuel, sulfur)
■	REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and particulates 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.

Environmental precautions

Personal protection: filter respirator for organic gases and particulates 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.

Methods and materials for containment and cleaning up

Absorb on paper. Evaporate on a glass or iron dish in hood. Burn the paper.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Above 77°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

Separated from strong oxidants. Ventilation along the floor.In general materials... toxic as stored or which can decompose into toxic components... should be stored in cool... ventilated place, out of... sun, away from... fire hazard... be periodically inspected and monitored. Incompatible materials should be isolated.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 10 ppm as TWA

Biological limit values

no data available

Exposure 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

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Liquid
Colour	Clear colorless to light yellow
Odour	SWEET, PUNGENT ODOR OF ACACIA
Melting point/freezing point	20 °C.
Boiling point or initial boiling point and boiling range	202.11°C. Atm. press.:1 013.25 hPa.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	1.4-5.2%(V)
Flash point	105 °C.;221 °F.

Auto-ignition temperature	535 °C. Atm. press.:1 013 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 1.681. Temperature:25.0°C.;dynamic viscosity (in mPa s) = 0.634. Temperature:100.0°C.
Solubility	6.1g/l
Partition coefficient n-octanol/water	log Pow = Ca. 1.63 - ca. 1.65. Remarks:Temperature: unknown.
Vapour pressure	0.45 mm Hg (25 °C)
Density and/or relative density	1.03 g/cm3. Temperature:20 °C.
Relative vapour density	4.1 (Air=1)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Slightly soluble in water.

Chemical stability

Stable under normal laboratory storage conditions.

Possibility of hazardous reactions

It/ does not form flammable mixtures with air at room temperature.ACETOPHENONE reacts with many acids and bases liberating heat and flammable gases (e.g., H2). Reacts with many oxidizing agents. Reacts with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H2) and heat. The amount of heat in these reactions may be sufficient to start a fire in the unreacted portion. Incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 2 081 mg/kg bw.
- Inhalation: no data available
- Dermal: LD50 - rat (male/female) - 3 300 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

Cancer Classification: Group D Not Classifiable as to Human Carcinogenicity

Reproductive toxicity

No information is available on the reproductive or developmental effects of acetophenone in humans. In one study of pregnant rats exposed dermally, no effects on reproduction or development were noted.

STOT-single exposure

The substance is irritating to the eyes. The substance may cause effects on the central nervous system.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Pimephales promelas - 162 mg/L - 96 h.
Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - 528 mg/L - 48 h.
Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 40 mg/L - 72 h.
Toxicity to microorganisms: IC50 - activated sludge - > 1 000 mg/L - 3 h. Remarks:Respiration rate.

Persistence and degradability

Acetophenone, present at 100 mg/l, achieved 61-68% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/l and the Japanese MITI test(1). Other screening studies give similar results and acetophenone is confirmed to be biodegradable(2-4). Acetophenone achieved 20-32% of its theoretical BOD using a sewage inoculum over a 5 day incubation period(2,3). Acetophenone reached 59% of its theoretical BOD using acclimated mixed microbial cultures and a 5 day incubation period(4). The biodegradation half-lives of acetophenone in groundwater, river water and lake water were 32, 8 and 4.5 days, respectively(5,6).

Bioaccumulative potential

An estimated BCF of 0.5 was calculated for acetophenone(SRC), using a log Kow of 1.58(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Koc of acetophenone was measured as 10, using an agricultural soil obtained from Northeastern China(1). According to a classification scheme(2), this Koc value suggests that acetophenone is expected to have very high mobility in soil(SRC).

Toxics Screening Level

The initial threshold screening level (ITSL) for acetophenone is 490 µg/m3 based on an 8 hr. averaging time.

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: 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

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/

Other Information

Use of alcoholic beverages enhances the harmful effect.