

Benzophenone SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- * Product Name: Benzophenone
- * Catalog Number: S4438
- * CAS Number: 119-61-9
- * IUPAC Name: Methanone, diphenyl-

Relevant identified uses and uses advised against

- * Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
- * Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

- * Company: Selleck Chemicals
- * TollFree: +1 877 796-6397
- * Tel: +1 832 582-8158
- * Fax: +1 832 582-8590

Emergency telephone number

- * Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

- Acute toxicity (oral): Category 4. H302
- Eye irritation: Category 2. H320
- Carcinogenicity: Category 1. H350
- Carcinogenicity: Category 2. H351
- Specific target organ toxicity (repeated exposure): Category 2. H373
- Acute aquatic toxicity: Category 1. H400
- Acute aquatic toxicity: Category 2. H401
- Chronic aquatic toxicity: Category 1. H410
- Chronic aquatic toxicity: Category 2. H411

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word

Danger

Hazard statement(s)	H302: Harmful if swallowed H320: Causes eye irritation H350: May cause cancer H351: Suspected of causing cancer H373: May causes damage to organs through prolonged or repeated exposure H400: Very toxic to aquatic life H401: Toxic to aquatic life H410: Very toxic to aquatic life with long lasting effects H411: Toxic to aquatic life with long lasting effects
Precautionary statement(s)	None.
Prevention	P203: Obtain, read and follow all safety instructions before use. P260: Do not breathe dust/fume/gas/mist/vapors/spray. P264: Wash hands thoroughly after handling. P264+P265: Wash hands thoroughly after handling. Do not touch eyes. P270: Do not eat, drink or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
Response	P301+P317: IF SWALLOWED: Get medical help. P305+P351: IF IN EYES: Rinse cautiously with water for several minutes. P318: if exposed or concerned, get medical advice. P319: Get medical help if you feel unwell. P330: Rinse mouth. P337+P317: If eye irritation persists: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P391: Collect spillage.
Storage	P405: Store locked up.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Benzophenone
CAS Number: 119-61-9
PubChem CID: 3102
Molecular formula: C₁₃H₁₀O
Molecular weight: 182.22 g/mol
IUPAC name: diphenylmethanone

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest.

Skin contact: Rinse and then wash skin with water and soap.

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

Ingestion: Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO₂), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Fire Extinguishing Agents Not to Be Used: Water may be ineffective.

Fire Extinguishing Agents: Foam, dry chemical, carbon dioxide, water spray. (USCG, 1999)

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

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

Wear self-contained breathing apparatus for firefighting if necessary.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: greater than 270 °F (USCG, 1999)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Excerpt from ERG Guide 127 [Flammable Liquids (Water-Miscible)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area for at least 50 meters (150 feet) in all directions.

LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet).

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

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.

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.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SRP: Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier.

Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in air, soil or water; effects on animal, aquatic and plant life; and conformance with environmental and public health regulations. If it is possible or reasonable use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination.

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

SMALL SPILLS AND LEAKAGE: Should a spill occur while you are handling this chemical, you should dampen the solid spill material with alcohol, then transfer the dampened material to a suitable container. Use absorbent paper dampened with alcohol to pick up any remaining material. Seal the absorbent paper, and any of your clothes, which may be contaminated, in a vapor-tight plastic bag for eventual disposal. Solvent wash all contaminated surfaces with alcohol followed by washing with a strong soap and water solution. Do not reenter the contaminate area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

STORAGE PRECAUTIONS: You should store this material in a refrigerator. (NTP, 1992)

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 °C.

Benzophenone should be stored under cool, dry conditions. A temperature above 45 °C should be avoided (risk of caking).

7.2 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 °C.

Benzophenone should be stored under cool, dry conditions. A temperature above 45 °C should be avoided (risk of caking).

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

8.1.2 Appropriate engineering controls

Use in a well-ventilated area. Chemical fume hood recommended for powder handling.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Respiratory protection usually not required under normal use with adequate ventilation.

Use N95 respirator for large-scale powder handling.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- a) Appearance: Benzophenone appears as white solid with a flowery odor. May float or sink in water. (USCG, 1999)
- b) Odor: Geranium-like odor
- c) Odor threshold: No data available
- d) pH: No data available
- e) Melting point/freezing point: alpha-118.6 °F; beta-79 °F; gamma-117 °F. (NTP, 1992)
- f) Initial boiling point and boiling range: 582.6 °F at 760 mmHg (NTP, 1992)
- g) Flash point: greater than 270 °F (USCG, 1999)
- h) Evaporation rate: No data available
- i) Flammability (solid, gas): No data available
- j) Upper/lower flammability or explosive limits: No data available
- k) Vapor pressure: 0.00193 [mmHg]
- l) Vapor density: No data available
- m) Relative density: 1.085 at 122 °F (USCG, 1999) - Denser than water; will sink
- n) Water solubility: Insoluble (<1 mg/ml at 77 °F) (NTP, 1992)

- o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): 3.4
- p) Auto-ignition temperature: No data available
- q) Decomposition temperature: No data available
- r) Viscosity: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 17.1 Å²

Complexity: 165

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Dust can form explosive mixture with air.

Incompatible with oxidizers

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO₂).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

No data available.

Serious eye damage/eye irritation:

No data available.

Respiratory or skin sensitization:

No data available.

Germ cell mutagenicity:

No data available.

Carcinogenicity:

May cause cancer (H350).

Reproductive toxicity:

No data available.

Specific target organ toxicity (single exposure):

H373

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

Benzophenone

Group 2B: Possibly carcinogenic to humans

Volume 101: (2012) Some Chemicals Present in Industrial and Consumer Products, Food and Drinking-water
2013

2011

Benzophenone

TR-533: Toxicology and Carcinogenesis Studies of Benzophenone (CASRN 119-61-9) in F344/N Rats and B6C3F1 Mice (Feed Studies) (2006)

12/09/04

Some Evidence

Equivocal Evidence

Some Evidence

Some Evidence

Under the conditions of these 2-year studies, there was some evidence of carcinogenic activity of benzophenone in m

Exposure routes:

The substance can be absorbed into the body through the skin and by ingestion.

Signs and symptoms of exposure:

Redness.

Symptoms of low dose exposure include excessive salivation and eye-watering. Acute dose symptoms include severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved. Hypertension, hypoglycemia, anxiety, headache, tremor and ataxia may also result.

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

EC50; Species: Pimephales promelas (fathead minnow); Conditions: flow-through bioassay with measured concentrations, 25.3 °C, dissolved oxygen 6.9 mg/L, hardness 47.9 mg/L calcium carbonate, alkalinity 34.0 mg/L calcium carbonate, and pH 7.72; Concentration: 15.3 mg/L for 96 hr (confidence limit: 14.4-16.3 mg/L); Effect: loss of equilibrium

LC50; Species: Pimephales promelas (fathead minnow); Conditions: flow-through bioassay with measured concentrations, 25.3 °C, dissolved oxygen 6.9 mg/L, hardness 47.9 mg/L calcium carbonate, alkalinity 34.0 mg/L calcium carbonate, and pH 7.72; Concentration: 15.3 mg/L for 96 hr (confidence limit: 14.4-16.3 mg/L)

LC50; Species: Ceriodaphnia dubia (Water flea); Conditions: freshwater; static; Concentration: 7600 ug/L for 1 day /active ingredient/

EC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 280 ug/L (95% confidence limit: 210 to 370 ug/L) for 1 day; Effect: intoxication, immobile /active ingredient/

For more Ecotoxicity Values (Complete) data for BENZOPHENONE (17 total), please visit the HSDB record page. /AQUATIC SPECIES/ The lethal and sublethal effects of six monosubstituted derivatives of benzene were measured by using the 7 day test with fathead minnow larvae. The LC50s for larvae were compared to those derived from the acute test. The larvae were more sensitive than juvenile fish, yet the toxicity order /of the six monosubstituted derivatives of benzene/ was the same for both life stages,

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): 3.4

Potential for bioaccumulation exists (Log P > 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Not classified as dangerous goods for transport (research quantities).

DOT label: Flammable Liquid

14.4 Packing group

Not applicable (not regulated as dangerous goods in typical research quantities).

14.5 Environmental hazards

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered (REACH Active)

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Environmental hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: Methanone, diphenyl-
- California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Carcinogenicity Authoritative List - EC Annex VI CMRs - Cat. 1B; IARC Carcinogens - 2B; Prop 65 Report - regardless of intended function of ingredient in the product
- EFSA Legal Basis: Regulation (EC) No 1831/2003 (amended)

- Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to us
- FDA Requirements: Benzophenone is a food additive permitted for direct addition to food for human consumption as a synthetic flavoring substance and adjuvant in accordance with the following conditions: a) they are used in the minimum quantity required to produce their intended effect, and otherwise in accordance wit

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product.

Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.