

## SAFETY DATA SHEET

## 1. Identification

**Product identifier** 4,4'-Bis(dimethylamino)benzophenone

**Other means of identification**

**Item** N-15134

**CAS number** 90-94-8

**Recommended use** For Laboratory Use Only

**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information****Manufacturer**

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United States

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## 2. Hazard(s) identification

**Physical hazards** Not classified.

**Health hazards** Serious eye damage/eye irritation Category 1  
Germ cell mutagenicity Category 2  
Carcinogenicity Category 1B

**Environmental hazards** Not classified.

**OSHA defined hazards** Not classified.

**Label elements**

**Signal word** Danger

**Hazard statement** Causes serious eye damage. Suspected of causing genetic defects. May cause cancer.

**Precautionary statement**

**Prevention** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.

**Response** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.

**Storage** Store locked up.

**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC)** None known.

**Supplemental information** 100% of the mixture consists of component(s) of unknown acute oral toxicity. 100% of the mixture consists of component(s) of unknown acute dermal toxicity. 100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

## 3. Composition/information on ingredients

**Substances**

| Chemical name                       | Common name and synonyms | CAS number | %   |
|-------------------------------------|--------------------------|------------|-----|
| 4,4'-Bis(dimethylamino)benzophenone |                          | 90-94-8    | 100 |

## 4. First-aid measures

|                                                                               |                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>                                                             | Move to fresh air. Call a physician if symptoms develop or persist.                                                                                                                                                                                                                                       |
| <b>Skin contact</b>                                                           | Wash off with soap and water. Get medical attention if irritation develops and persists.                                                                                                                                                                                                                  |
| <b>Eye contact</b>                                                            | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.                                                                                                                               |
| <b>Ingestion</b>                                                              | Rinse mouth. Get medical attention if symptoms occur.                                                                                                                                                                                                                                                     |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.                                                                                                                                              |
| <b>Indication of immediate medical attention and special treatment needed</b> | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.                                                                                                                                                                                    |
| <b>General information</b>                                                    | IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. |

## 5. Fire-fighting measures

|                                                                      |                                                                                               |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Suitable extinguishing media</b>                                  | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).                                   |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                        |
| <b>Specific hazards arising from the chemical</b>                    | During fire, gases hazardous to health may be formed.                                         |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| <b>Fire fighting equipment/instructions</b>                          | Use water spray to cool unopened containers.                                                  |
| <b>Specific methods</b>                                              | Use standard firefighting procedures and consider the hazards of other involved materials.    |
| <b>General fire hazards</b>                                          | No unusual fire or explosion hazards noted.                                                   |

## 6. Accidental release measures

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.                                                                                                                                                                                                                     |
| <b>Methods and materials for containment and cleaning up</b>               | <p>The product is immiscible with water and will spread on the water surface.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.</p> |
| <b>Environmental precautions</b>                                           | Avoid discharge into drains, water courses or onto the ground.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## 7. Handling and storage

|                                                                     |                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Precautions for safe handling</b>                                | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get this material in contact with eyes. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. |
| <b>Conditions for safe storage, including any incompatibilities</b> | Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).                                                                                                                                                                                                            |

## 8. Exposure controls/personal protection

|                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Occupational exposure limits</b>                                          | This substance has no PEL, TLV, or other recommended exposure limit.                                                                                                                                                                                                                                                                                                                                                   |
| <b>Biological limit values</b>                                               | No biological exposure limits noted for the ingredient(s).                                                                                                                                                                                                                                                                                                                                                             |
| <b>Appropriate engineering controls</b>                                      | Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station. |
| <b>Individual protection measures, such as personal protective equipment</b> |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Eye/face protection</b>                                                   | Wear safety glasses with side shields (or goggles) and a face shield.                                                                                                                                                                                                                                                                                                                                                  |
| <b>Skin protection</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hand protection</b>                                                       | Wear appropriate chemical resistant gloves.                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Other</b>                                                                 | Wear suitable protective clothing. Use of an impervious apron is recommended.                                                                                                                                                                                                                                                                                                                                          |
| <b>Respiratory protection</b>                                                | In case of insufficient ventilation, wear suitable respiratory equipment.                                                                                                                                                                                                                                                                                                                                              |
| <b>Thermal hazards</b>                                                       | Wear appropriate thermal protective clothing, when necessary.                                                                                                                                                                                                                                                                                                                                                          |
| <b>General hygiene considerations</b>                                        | Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.                                                                                                                                                   |

## 9. Physical and chemical properties

|                                                     |                                |
|-----------------------------------------------------|--------------------------------|
| <b>Appearance</b>                                   |                                |
| <b>Physical state</b>                               | Solid.                         |
| <b>Form</b>                                         | Solid.                         |
| <b>Color</b>                                        | Not available.                 |
| <b>Odor</b>                                         | Not available.                 |
| <b>Odor threshold</b>                               | Not available.                 |
| <b>pH</b>                                           | Not available.                 |
| <b>Melting point/freezing point</b>                 | 341.6 °F (172 °C)              |
| <b>Initial boiling point and boiling range</b>      | > 680 °F (> 360 °C) Decomposes |
| <b>Flash point</b>                                  | Not available.                 |
| <b>Evaporation rate</b>                             | Not available.                 |
| <b>Flammability (solid, gas)</b>                    | Not available.                 |
| <b>Upper/lower flammability or explosive limits</b> |                                |
| <b>Flammability limit - lower (%)</b>               | Not available.                 |
| <b>Flammability limit - upper (%)</b>               | Not available.                 |
| <b>Explosive limit - lower (%)</b>                  | Not available.                 |
| <b>Explosive limit - upper (%)</b>                  | Not available.                 |
| <b>Vapor pressure</b>                               | 0.0000001 kPa (77 °F (25 °C))  |
| <b>Vapor density</b>                                | Not available.                 |
| <b>Relative density</b>                             | Not available.                 |
| <b>Solubility(ies)</b>                              |                                |
| <b>Solubility (water)</b>                           | Insoluble                      |
| <b>Partition coefficient (n-octanol/water)</b>      | Not available.                 |
| <b>Auto-ignition temperature</b>                    | Not available.                 |
| <b>Decomposition temperature</b>                    | Not available.                 |
| <b>Viscosity</b>                                    | Not available.                 |
| <b>Other information</b>                            |                                |
| <b>Explosive properties</b>                         | Not explosive.                 |

|                             |                |
|-----------------------------|----------------|
| <b>Molecular formula</b>    | C17-H20-N2-O   |
| <b>Molecular weight</b>     | 268.35 g/mol   |
| <b>Oxidizing properties</b> | Not oxidizing. |

## 10. Stability and reactivity

|                                           |                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.                                                   |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.                                   |
| <b>Conditions to avoid</b>                | Contact with incompatible materials.                                                          |
| <b>Incompatible materials</b>             | Peroxides. Phenols.                                                                           |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.                                                |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |                                                      |
|---------------------|------------------------------------------------------|
| <b>Inhalation</b>   | No adverse effects due to inhalation are expected.   |
| <b>Skin contact</b> | No adverse effects due to skin contact are expected. |
| <b>Eye contact</b>  | Causes serious eye damage.                           |
| <b>Ingestion</b>    | Expected to be a low ingestion hazard.               |

|                                                                                     |                                                                                                                                                              |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Symptoms related to the physical, chemical and toxicological characteristics</b> | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Information on toxicological effects

|                                          |                                                        |
|------------------------------------------|--------------------------------------------------------|
| <b>Acute toxicity</b>                    | Not known.                                             |
| <b>Skin corrosion/irritation</b>         | Prolonged skin contact may cause temporary irritation. |
| <b>Serious eye damage/eye irritation</b> | Causes serious eye damage.                             |

### Respiratory or skin sensitization

|                                  |                                                           |
|----------------------------------|-----------------------------------------------------------|
| <b>Respiratory sensitization</b> | Not a respiratory sensitizer.                             |
| <b>Skin sensitization</b>        | This product is not expected to cause skin sensitization. |

|                               |                                       |
|-------------------------------|---------------------------------------|
| <b>Germ cell mutagenicity</b> | Suspected of causing genetic defects. |
|-------------------------------|---------------------------------------|

|                        |                   |
|------------------------|-------------------|
| <b>Carcinogenicity</b> | May cause cancer. |
|------------------------|-------------------|

### IARC Monographs. Overall Evaluation of Carcinogenicity

4,4'-Bis(dimethylamino)benzophenone (CAS 90-94-8) 2B Possibly carcinogenic to humans.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

### US. National Toxicology Program (NTP) Report on Carcinogens

4,4'-Bis(dimethylamino)benzophenone (CAS 90-94-8) Reasonably Anticipated to be a Human Carcinogen.

|                              |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| <b>Reproductive toxicity</b> | This product is not expected to cause reproductive or developmental effects. |
|------------------------------|------------------------------------------------------------------------------|

|                                                         |                 |
|---------------------------------------------------------|-----------------|
| <b>Specific target organ toxicity - single exposure</b> | Not classified. |
|---------------------------------------------------------|-----------------|

|                                                           |                 |
|-----------------------------------------------------------|-----------------|
| <b>Specific target organ toxicity - repeated exposure</b> | Not classified. |
|-----------------------------------------------------------|-----------------|

|                          |                           |
|--------------------------|---------------------------|
| <b>Aspiration hazard</b> | Not an aspiration hazard. |
|--------------------------|---------------------------|

|                        |                                               |
|------------------------|-----------------------------------------------|
| <b>Chronic effects</b> | Prolonged exposure may cause chronic effects. |
|------------------------|-----------------------------------------------|

## 12. Ecological information

|                    |                                                                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ecotoxicity</b> | The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Persistence and degradability

|                                  |                    |
|----------------------------------|--------------------|
| <b>Bioaccumulative potential</b> | No data available. |
|----------------------------------|--------------------|

|                         |                    |
|-------------------------|--------------------|
| <b>Mobility in soil</b> | No data available. |
|-------------------------|--------------------|

|                                              |                                                                                                                                                                                                                  |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Other adverse effects</b>                 | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.                          |
| <b>13. Disposal considerations</b>           |                                                                                                                                                                                                                  |
| <b>Disposal instructions</b>                 | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.                         |
| <b>Local disposal regulations</b>            | Dispose in accordance with all applicable regulations.                                                                                                                                                           |
| <b>Hazardous waste code</b>                  | The waste code should be assigned in discussion between the user, the producer and the waste disposal company.                                                                                                   |
| <b>Waste from residues / unused products</b> | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| <b>Contaminated packaging</b>                | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.       |

## 14. Transport information

### DOT

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

4,4'-Bis(dimethylamino)benzophenone (CAS 90-94-8) Listed.

### SARA 304 Emergency release notification

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**  
 Immediate Hazard - Yes  
 Delayed Hazard - Yes  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

### SARA 302 Extremely hazardous substance

Not listed.

**SARA 311/312 Hazardous chemical** Yes

### SARA 313 (TRI reporting)

| Chemical name                       | CAS number | % by wt. |
|-------------------------------------|------------|----------|
| 4,4'-Bis(dimethylamino)benzophenone | 90-94-8    | 100      |

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

4,4'-Bis(dimethylamino)benzophenone (CAS 90-94-8)

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

**US state regulations**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

4,4'-Bis(dimethylamino)benzophenone (CAS 90-94-8) Listed: January 1, 1988

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

4,4'-Bis(dimethylamino)benzophenone (CAS 90-94-8)

**International Inventories**

| Country(s) or region        | Inventory name                                                         | On inventory (yes/no)* |
|-----------------------------|------------------------------------------------------------------------|------------------------|
| Australia                   | Australian Inventory of Chemical Substances (AICS)                     | Yes                    |
| Canada                      | Domestic Substances List (DSL)                                         | Yes                    |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | Yes                    |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes                    |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | Yes                    |
| Korea                       | Existing Chemicals List (ECL)                                          | Yes                    |
| New Zealand                 | New Zealand Inventory                                                  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | Yes                    |

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

|               |                                                |
|---------------|------------------------------------------------|
| Issue date    | 05-10-2016                                     |
| Revision date | 08-06-2021                                     |
| Version #     | 03                                             |
| NFPA ratings  | Health: 3<br>Flammability: 0<br>Instability: 0 |

## Disclaimer

Chem Service, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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This product is furnished FOR LABORATORY USE ONLY.

## Revision information

Product and Company Identification: Product and Company Identification

Hazard(s) identification: Prevention

Hazard(s) identification: Response

Hazard(s) identification: Supplemental information

Accidental release measures: Methods and materials for containment and cleaning up

Exposure controls/personal protection: General hygiene considerations

Exposure controls/personal protection: Hand protection

Toxicological information: Acute toxicity

Ecological information: Persistence / degradability

Other information, including date of preparation or last revision: References

Other information, including date of preparation or last revision: Disclaimer

Other information, including date of preparation or last revision: Further information