

## SAFETY DATA SHEET

Version 6.2  
Revision Date 04/17/2021  
Print Date 05/28/2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : 4,4'-Dibromobiphenyl

Product Number : 229237  
Brand : Aldrich  
CAS-No. : 92-86-4

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302  
Skin irritation (Category 2), H315  
Serious eye damage (Category 1), H318  
Carcinogenicity (Category 2), H351  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



|                            |                                                                                                                                                                            |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Signal word                | Danger                                                                                                                                                                     |
| Hazard statement(s)        |                                                                                                                                                                            |
| H302                       | Harmful if swallowed.                                                                                                                                                      |
| H315                       | Causes skin irritation.                                                                                                                                                    |
| H318                       | Causes serious eye damage.                                                                                                                                                 |
| H335                       | May cause respiratory irritation.                                                                                                                                          |
| H351                       | Suspected of causing cancer.                                                                                                                                               |
| H410                       | Very toxic to aquatic life with long lasting effects.                                                                                                                      |
| Precautionary statement(s) |                                                                                                                                                                            |
| P201                       | Obtain special instructions before use.                                                                                                                                    |
| P202                       | Do not handle until all safety precautions have been read and understood.                                                                                                  |
| P261                       | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.                                                                                                                      |
| P264                       | Wash skin thoroughly after handling.                                                                                                                                       |
| P270                       | Do not eat, drink or smoke when using this product.                                                                                                                        |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                                                                            |
| P273                       | Avoid release to the environment.                                                                                                                                          |
| P280                       | Wear eye protection/ face protection.                                                                                                                                      |
| P280                       | Wear protective gloves.                                                                                                                                                    |
| P281                       | Use personal protective equipment as required.                                                                                                                             |
| P301 + P312 + P330         | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.                                                                                                |
| P302 + P352                | IF ON SKIN: Wash with plenty of soap and water.                                                                                                                            |
| P304 + P340 + P312         | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.             |
| P305 + P351 + P338 + P310  | 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. |
| P308 + P313                | IF exposed or concerned: Get medical advice/ attention.                                                                                                                    |
| P332 + P313                | If skin irritation occurs: Get medical advice/ attention.                                                                                                                  |
| P362                       | Take off contaminated clothing and wash before reuse.                                                                                                                      |
| P391                       | Collect spillage.                                                                                                                                                          |
| P403 + P233                | Store in a well-ventilated place. Keep container tightly closed.                                                                                                           |
| P405                       | Store locked up.                                                                                                                                                           |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.                                                                                                        |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                |
|------------------|----------------|
| Molecular weight | : 312.00 g/mol |
| CAS-No.          | : 92-86-4      |
| EC-No.           | : 202-198-6    |

| Component                   | Classification                                                                   | Concentration |
|-----------------------------|----------------------------------------------------------------------------------|---------------|
| <b>4,4'-dibromobiphenyl</b> |                                                                                  |               |
|                             | Acute Tox. 4; Skin Irrit. 2;<br>Eye Dam. 1; Carc. 2;<br>STOT SE 3; Aquatic Acute | <= 100 %      |

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|  |                                                                                                         |  |
|--|---------------------------------------------------------------------------------------------------------|--|
|  | 1; Aquatic Chronic 1;<br>H302, H315, H318, H351,<br>H335, H400, H410<br>M-Factor - Aquatic Acute:<br>10 |  |
|--|---------------------------------------------------------------------------------------------------------|--|

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

Hydrogen bromide gas

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

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## **SECTION 6: Accidental release measures**

### **6.1 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. For personal protection see section 8.

### **6.2 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.

### **6.3 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.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. **Advice on safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

#### **Advice on protection against fire and explosion**

Provide appropriate exhaust ventilation at places where dust is formed.

#### **Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Keep container tightly closed in a dry and well-ventilated place.  
Storage class (TRGS 510): 13: Non Combustible Solids

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

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

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                                            |                                                         |
|--------------------------------------------|---------------------------------------------------------|
| a) Appearance                              | Form: solid                                             |
| b) Odor                                    | No data available                                       |
| c) Odor Threshold                          | No data available                                       |
| d) pH                                      | No data available                                       |
| e) Melting point/freezing point            | Melting point/range: 163 - 165 °C (325 - 329 °F) - lit. |
| f) Initial boiling point and boiling range | 355 - 360 °C 671 - 680 °F - lit.                        |
| g) Flash point                             | ( )No data available                                    |
| h) Evaporation rate                        | No data available                                       |
| i) Flammability (solid, gas)               | No data available                                       |
| j) Upper/lower flammability or             | No data available                                       |

explosive limits

- |                                              |                   |
|----------------------------------------------|-------------------|
| k) Vapor pressure                            | No data available |
| l) Vapor density                             | No data available |
| m) Relative density                          | No data available |
| n) Water solubility                          | No data available |
| o) Partition coefficient:<br>n-octanol/water | No data available |
| p) Autoignition<br>temperature               | No data available |
| q) Decomposition<br>temperature              | No data available |
| r) Viscosity                                 | No data available |
| s) Explosive properties                      | No data available |
| t) Oxidizing properties                      | No data available |

## **9.2 Other safety information**

No data available

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## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

No data available

### **10.2 Chemical stability**

Stable under recommended storage conditions.

### **10.3 Possibility of hazardous reactions**

No data available

### **10.4 Conditions to avoid**

No data available

### **10.5 Incompatible materials**

Strong oxidizing agents

### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

No data available

Inhalation: No data available

Dermal: No data available

No 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**

Suspected human carcinogens

IARC: 2B - Group 2B: Possibly carcinogenic to humans (4,4'-dibromobiphenyl)

2A - Group 2A: Probably carcinogenic to humans (4,4'-dibromobiphenyl)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (4,4'-dibromobiphenyl)

2A - Group 2A: Probably carcinogenic to humans (4,4'-dibromobiphenyl)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (4,4'-dibromobiphenyl)

2A - Group 2A: Probably carcinogenic to humans (4,4'-dibromobiphenyl)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (4,4'-dibromobiphenyl)

2A - Group 2A: Probably carcinogenic to humans (4,4'-dibromobiphenyl)

ACGIH: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: RAHC - Reasonably anticipated to be a human carcinogen (4,4'-dibromobiphenyl)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (4,4'-dibromobiphenyl)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

Not available

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### DOT (US)

UN number: 3152    Class: 9    Packing group: II

Proper shipping name: Polyhalogenated biphenyls, solid

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

### IMDG

UN number: 3152    Class: 9    Packing group: II

Proper shipping name: POLYHALOGENATED BIPHENYLS, SOLID

EMS-No: F-A, S-A

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Marine pollutant : yes

**IATA**

UN number: 3152 Class: 9

Packing group: II

Proper shipping name: Polyhalogenated biphenyls, solid

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**SECTION 15: Regulatory information**

**SARA 302 Components**

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

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

|                      | CAS-No. | Revision Date |
|----------------------|---------|---------------|
| 4,4'-dibromobiphenyl | 92-86-4 | 2015-11-23    |

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

|                      | CAS-No. | Revision Date |
|----------------------|---------|---------------|
| 4,4'-dibromobiphenyl | 92-86-4 | 2015-11-23    |

**California Prop. 65 Components**

|                                                                                                                                                                                                               | CAS-No. | Revision Date |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|
| , which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> . | 92-86-4 | 2007-09-28    |

|                                                                                             |                      |                 |                          |
|---------------------------------------------------------------------------------------------|----------------------|-----------------|--------------------------|
| WARNING! This product contains a chemical known in the State of California to cause cancer. | 4,4'-dibromobiphenyl | CAS-No. 92-86-4 | Revision Date 2007-09-28 |
|---------------------------------------------------------------------------------------------|----------------------|-----------------|--------------------------|

|                                                                                                                               |                      |                 |                          |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|--------------------------|
| WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm. | 4,4'-dibromobiphenyl | CAS-No. 92-86-4 | Revision Date 2007-09-28 |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|--------------------------|

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**SECTION 16: Other information**

**Further information**

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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

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