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Safety & Environmental  
Health

**SIGMA-ALDRICH**

**Material Safety Data Sheet**

Version 3.0  
Revision Date 01/03/2009  
Print Date 06/11/2009

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : **Biphenyl**  
Product Number : B34656  
Brand : Sigma-Aldrich  
Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA  
Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C<sub>12</sub>H<sub>10</sub>  
Molecular Weight : 154.21 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Biphenyl 92-52-4	202-163-5	601-042-00-8	-

**3. HAZARDS IDENTIFICATION**

**Emergency Overview**

**OSHA Hazards**

Target Organ Effect, Corrosive

**Target Organs**

Liver, Central nervous system, Peripheral nervous system.

**HMIS Classification**

Health Hazard: 3  
Chronic Health Hazard: \*  
Flammability: 1  
Physical hazards: 0

**NFPA Rating**

Health Hazard: 3  
Fire: 1  
Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

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**Skin**  
**Eyes**  
**Ingestion**

May be harmful if absorbed through skin. Causes skin burns.  
Causes eye burns.  
May be harmful if swallowed. Causes burns.

**4. FIRST AID MEASURES**

**General advice**

Consult a physician. Show this 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**

Continue rinsing eyes during transport to hospital. 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.

**5. FIRE-FIGHTING MEASURES**

**Flammable properties**

Flash point 110 °C (230 °F) - closed cup

Ignition temperature 540 °C (1,004 °F)

**Suitable extinguishing media**

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

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

**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 for cleaning up**

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

**7. HANDLING AND STORAGE**

**Handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

**Storage**

Keep container tightly closed in a dry and well-ventilated place.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Components with workplace control parameters**

Components	CAS-No.	Value	Control	Update	Basis

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			parameters		
Biphenyl	92-52-4	TWA	0.2 ppm 1.3 mg/m3	1994-09-01	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004; Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs)
		TWA	0.2 ppm 1 mg/m3	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
		TWA	0.2 ppm 1 mg/m3	1993-06-30	US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants.

#### Personal protective equipment

##### 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. Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Hand protection

Handle with gloves.

##### Eye protection

Safety glasses

##### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

##### Hygiene measures

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

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

##### Appearance

Form crystalline  
Colour light yellow

##### Safety data

pH no data available

Melting point 68 - 70 °C (154 - 158 °F)  
Boiling point 255 °C (491 °F)  
Flash point 110 °C (230 °F) - closed cup  
Ignition temperature 540 °C (1,004 °F)  
Lower explosion limit 0.6 %(V)  
Upper explosion limit 5.8 %(V)  
Density 0.992 g/cm3  
Water solubility no data available

#### 10. STABILITY AND REACTIVITY

##### Storage stability

Stable under recommended storage conditions.

##### Materials to avoid

Strong oxidizing agents

##### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

#### 11. TOXICOLOGICAL INFORMATION

##### Acute toxicity

LD50 Oral - rat - 2,140 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Muscle weakness. Gastrointestinal disturbance

LD50 Dermal - rabbit - > 5,010 mg/kg

##### Irritation and corrosion

Skin - rabbit - Severe skin irritation - 24 h

Eyes - rabbit - Mild eye irritation

##### Sensitisation

no data available

##### Chronic exposure

Carcinogenicity - mouse - Oral

Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Blood:Tumors.

Carcinogenicity - mouse - Subcutaneous

Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Liver:Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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

Genotoxicity in vitro - mouse - lymphocyte  
DNA damage

Genotoxicity in vitro - mouse - lymphocyte  
Mutation in mammalian somatic cells.

Genotoxicity In vitro - Hamster - Lungs  
Mutation in microorganisms

Genotoxicity in vitro - Hamster - fibroblast  
Sister chromatid exchange

Genotoxicity in vivo - rat - Oral  
Unscheduled DNA synthesis

Genotoxicity in vivo - mouse - Oral  
DNA damage

#### Signs and Symptoms of Exposure

Liver injury may occur., Gastrointestinal disturbance

#### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.
<b>Ingestion</b>	May be harmful if swallowed. Causes burns.
<b>Target Organs</b>	Liver, Central nervous system, Peripheral nervous system.,

**Additional information**  
RTECS: DU8050000

#### 12. ECOLOGICAL INFORMATION

##### Elimination Information (persistence and degradability)

Bioaccumulation	Leuciscus idus (Golden orfe) - 3 d Bioconcentration factor (BCF): 281
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##### Ecotoxicity effects

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 1.45 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	LC50 - Daphnia magna (Water flea) - 0.36 mg/l - 48 h

##### Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### 13. DISPOSAL CONSIDERATIONS

**Product**  
Observe all federal, state, and local environmental regulations. 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.

#### 14. TRANSPORT INFORMATION

##### DOT (US)

UN-Number: 3077 Class: 9 Packing group: III  
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Biphenyl)  
Marine pollutant: Marine pollutant  
Poison Inhalation Hazard: No

##### IMDG

UN-Number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Biphenyl)  
Marine pollutant: Marine pollutant

##### IATA

UN-Number: 3077 Class: 9 Packing group: III  
Proper shipping name: Environmentally hazardous substance, solid n.o.s. (Biphenyl)

#### 15. REGULATORY INFORMATION

##### OSHA Hazards

Target Organ Effect, Corrosive

##### DSL Status

All components of this product are on the Canadian DSL list.

##### SARA 302 Components

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

##### SARA 313 Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	1987-01-01

##### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

##### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	1987-01-01

##### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	1987-01-01

##### New Jersey Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	1987-01-01

##### California Prop. 65 Components

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

#### 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 the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.