

Material Safety Data Sheet

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Version 1.4

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	BIPHENYL, 99.5%
Product Number	B34656
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
BIPHENYL	92-52-4	202-163-5	601-042-00-8

Formula	C12H10
Molecular Weight	154.21 AMU
Synonyms	Bibenzene * 1,1'-Biphenyl * Biphenyl (ACGIH:OSHA) * Carolid AL * CP 390 * Diphenyl (OSHA) * Lemonene * MCS 1572 * Phenador-X * Phenylbenzene * PHPH * Tetrosin LY * Xenene

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is

conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1 mg/m ³
Poland		NDSch	2 mg/m ³

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	1 mg/m ³ 0.2 ppm

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	1 mg/m ³ 0.2 ppm

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	1 mg/m3
		0.2 ppm

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level)	1.3 mg/m3
		0.2 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	1.3 mg/m3
		0.2 ppm

Remarks: D

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	1.3 mg/m3
		0.2 ppm
OEL	STEL	3.8 mg/m3
		0.6 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Solid Color: Faintly yellow Form: Fine crystals	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	255 °C	760 mmHg
MP/MP Range	68 °C	
Flash Point	110 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	540 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 0.6 % Upper: 5.8 %	
Vapor Pressure	N/A	
SG/Density	0.992 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	5.31 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: DU8050000

ACUTE TOXICITY

LD50

Oral

Rat

2140 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).

Behavioral:Muscle weakness. Gastrointestinal:Alteration in gastric secretion.

LD50

Oral

Mouse

1900 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).

Gastrointestinal:Hypermotility, diarrhea.

LD50

Intravenous

Mouse

56 MG/KG

LD50

Oral

Cat

> 2600 mg/kg

LD50

Oral

Rabbit

2400 mg/kg

LD50

Skin

Rabbit

> 5010 mg/kg

IRRITATION DATA

Skin

Rabbit

0.5 ml

24H

Remarks: Severe irritation effect

Eyes

Rabbit
100 mg
Remarks: Mild irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

Damage to the liver. Exposure can cause: Gastrointestinal disturbances.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

TARGET ORGAN INFORMATION

Liver. Central nervous system. Peripheral nervous system.

CONDITIONS AGGRAVATED BY EXPOSURE

May cause nervous system disturbances.

CHRONIC EXPOSURE - CARCINOGEN

Mouse
Route of Application: Oral
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Blood:Tumors.

Mouse
Route of Application: Subcutaneous
Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Liver:Tumors.

CHRONIC EXPOSURE - MUTAGEN

Rat
8400 MG/KG
Oral
4W
Unscheduled DNA synthesis

Mouse
20 UMOL/L (+S9)
Cell Type: lymphocyte
Mutation in microorganisms

Mouse
50 UMOL/L
Cell Type: lymphocyte
DNA damage

Mouse
2 GM/KG
Oral
DNA damage

Mouse
296 UMOL/L
Cell Type: lymphocyte
Mutation in mammalian somatic cells.

Hamster
10 MG/L (+S9)
Cell Type: lung
Mutation in microorganisms

Hamster
10 MG/L
Cell Type: lung
Cytogenetic analysis

Hamster
100 UMOL/L
Cell Type: fibroblast
Sister chromatid exchange

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

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

14 - Transport Information

RID/ADR

UN#: 3077
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s

IMDG

UN#: 3077
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s
Marine Pollutant: Yes
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 3077
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 601-042-00-8
INDICATION OF DANGER: Xi N
Irritant. Dangerous for the environment.

R-PHRASES: 36/37/38 50/53

Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 23 60 61

Do not breathe vapor. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 4

16 - Other Information

WARRANTY

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 Inc., 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. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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