

SAFETY DATA SHEET

Preparation Date: 06/21/2019

Revision date 06/21/2019

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: B1097
Product Name: BIPHENYL, REAGENT

Other means of identification

Synonyms: Bibenzene
 1,1'-Biphenyl
 Diphenyl
 Phenylbenzene
CAS #: 92-52-4
RTECS # DU8050000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3

Label elements

Warning

Hazard statements

Causes skin irritation
 Causes serious eye irritation
 May cause respiratory irritation



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

May be harmful if swallowed
May be harmful in contact with skin
Very toxic to aquatic life with long lasting effects
Very toxic to aquatic life

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
IF ON SKIN: Wash with plenty of water
If skin irritation occurs: Get medical attention
Take off contaminated clothing and wash it before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Biphenyl	92-52-4	100

4. FIRST AID MEASURES

First aid measures

General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops.

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention. If symptoms persist, call a

physician.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms

- Causes serious eye irritation
- Causes skin irritation
- It may cause dermatitis
- Irritating to respiratory system
- May affect the liver
- It may affect the kidneys
- It may affect the heart
- Peripheral neuropathy
- Paresthesia (numbness and tingling of the extremities)
- Central nervous system effects
- Abdominal pain
- May cause nausea and vomiting
- May cause hypermotility, diarrhea
- May affect respiration
- May cause headache
- May cause muscle weakness
- Ataxia
- Somnolence
- Fatigue
- Tremors
- Insomnia
- May cause personality and mood changes

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Dry chemical. Carbon dioxide (CO₂). Water spray mist or foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO₂).

Specific hazards May be combustible at high temperatures.

Special Protective Actions for Firefighters

Specific Methods: No information available

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent)

and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Remove all sources of ignition.

Environmental precautions Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Use appropriate tools to put the spilled solid in a suitable waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials. Remove all sources of ignition.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe dust. Keep away from heat and sources of ignition. Use only in well-ventilated areas. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

Strong oxidizing agents
Reducing agents
Acids
Alkalis

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Biphenyl	92-52-4	0.2 ppm TWA 1 mg/m ³ TWA	0.2 ppm TWA 1 mg/m ³ TWA	0.2 ppm TWA	None

Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Biphenyl	92-52-4	0.2 ppm TWA 1.3 mg/m ³ TWA	0.2 ppm TWA	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
Biphenyl	92-52-4	0.2 ppm TWA 1.3 mg/m ³ TWA	0.2 ppm TWA

Appropriate engineering controls

Engineering measures to reduce exposure:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection:

Goggles or Safety glasses with side-shields.

Skin and body protection:

Chemical resistant apron
Long sleeved clothing
Gloves

Respiratory protection:

Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures:

Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid

Appearance:

Scales.

Color:

White.

Odor:

Pleasant. Buttery.

Taste

No information available.

Formula

(C₆H₅)₂

Molecular/Formula weight (g/mole):

154.21

Flammability (solid, gas)

no data available

Flashpoint (°C/°F):

113°C/ 235°F

Flash Point Tested according to:

Closed cup

Autoignition Temperature (°C/°F):

540°C/ 1004°F

Lower Explosion Limit (%):

0.6

Upper Explosion Limit (%):

5.8

Melting point/range(°C/°F):

68-72°C/ 154.4-161.6°F

Decomposition temperature(°C/°F):

No information available

Boiling point/range(°C/°F):
255°C/ 491°F

Bulk density:
No information available

Density (g/cm3):
No information available

Specific gravity:
1.041

pH
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
5.31

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
log Kow = 4.01

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Insoluble in water
Soluble in Ether
Very soluble in Benzene
Very soluble in carbon disulfide
Very soluble in Methanol
Soluble in Carbon tetrachloride

10. STABILITY AND REACTIVITY

Reactivity

No information available

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Strong oxidizing agents
Reducing agents
Acids
Alkalis

Hazardous decomposition products: Carbon oxides.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Skin. Eyes. Inhalation. Ingestion.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document

Product code: B1097

Product name: BIPHENYL,
REAGENT

Page 6 / 13

Component Information

Biphenyl	
CAS No	92-52-4

LD50/oral/rat = 2140 mg/kg Oral LD50 Rat
LD50/oral/mouse = 1900 mg/kg Oral LD50 Mouse
LD50/dermal/rabbit = > 5010 mg/kg Dermal LD50 Rabbit
LD50/dermal/rat = No information available
LC50/inhalation/rat = > 200 mg/m³ Inhalation LC50 Rat
LC50/inhalation/mouse = > 0.275 mg/L Inhalation LC50 Mouse
Other LD50 or LC50 information = 2400 mg/kg Oral LD50 Rabbit; > 2600 mg/kg Oral LD50 Cat

Product Information

LD50/oral/rat =
Value - Acute Toxicity = 2140 mg/kg

LD50/oral/mouse =
Value - Acute Tox = 1900 mg/kg

LD50/dermal/rabbit
Value - Acute Toxicity = > 5010 mg/kg

LD50/dermal/rat
VALUE - Acute Tox = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = > 200 mg/m³

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = > 0.275 mg/L

Symptoms

Skin Contact: Causes skin irritation. May be harmful in contact with skin.

Eye Contact: Causes serious eye irritation.

Inhalation Irritating to respiratory system. May cause nausea, vomiting. May cause abdominal pain. May cause bronchitis. May cause anorexia or weight loss. May cause muscle weakness. It may affect respiration (respiratory stimulation). It may affect behavior/central nervous system (ataxia). It may affect the liver. May affect the kidneys. May cause lacrimation. May affect the heart (myocarditis).

Ingestion May be harmful if swallowed. May cause digestive (gastrointestinal) tract irritation. May cause hypermotility, diarrhea. May affect liver. May affect behavior/central nervous system (somnia). May affect behavior/central nervous system (somnia).

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Chronic exposure to Biphenyl by inhalation can cause the following: Abdominal

pain, nausea, vomiting, headache, fatigue, tremor, insomnia, sensory impairment, mood changes, cardiac impairment, central and peripheral nervous system damage and liver impairment or injury,. Prolonged or repeated inhalation may affect the peripheral nervous system (weakness, peripheral neuropathy with paresthesia - a tingling, pricking, or numbness of the skin (known as the feeling of "pins and needles) generally of the hands and feet (extremities)). Prolonged or repeated inhalation may affect the kidneys. Chronic intensive skin contact may cause dermatitis.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Biphenyl	92-52-4	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure respiratory system.

STOT - repeated exposure No information available.

Target Organs: Liver. Kidneys. Heart. Central nervous system. Peripheral nervous system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

Biphenyl - 92-52-4

Algae/aquatic plants

Fish

EC50: =1.28mg/L (3h, Chlamydomonas angulosa)
 LC50: 1.65 - 2.29mg/L (96h, Pimephales promelas) LC50: 1.17 - 1.81mg/L (96h, Pimephales promelas) LC50: 4.3 - 5.1mg/L (96h, Lepomis macrochirus) LC50: 1.4 - 1.6mg/L (96h, Oncorhynchus mykiss)

Crustacea

EC50: 0.63 - 0.85mg/L (48h, Daphnia magna)

Persistence and degradability: No information available

Bioaccumulative potential: Potential for bioconcentration in aquatic organisms is very high. Potential for bioconcentration in aquatic organisms is high.

Mobility in soil
Other adverse effects

It is expected to have low mobility based upon estimated Koc
No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Biphenyl	92-52-4	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Hazard Class 9
Subsidiary Class No information available
Packing group: III
Emergency Response Guide Number 171
Marine Pollutant Marine Pollutant
DOT RQ (lbs): 100 lbs./45.4 kg
Special Provisions 146, 335, A112, B54, B120, IB8, IP3, N20, N91, T1, TP33, 8
Symbol(s): No information available
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III, Marine pollutant

TDG (Canada)

UN-No: UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Hazard Class 9
Subsidiary Risk: No information available
Packing Group: III
Marine Pollutant Marine Pollutant
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Biphenyl), 9, III

ADR

UN Number UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es) 9
Packing group III
Subsidiary Risk: No information available
Special Provisions 274, 335, 601, 375
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BIPHENYL), 9, III

IMDG

Product code: B1097

Product name: BIPHENYL,
REAGENT

Page 9 / 13

UN-No: UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Hazard Class: 9
Subsidiary Risk: No information available
Packing Group: III
Marine Pollutant: Marine Pollutant
EMS: F-A
Special Provisions: 274, 335, 966, 967, 969
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BIPHENYL), 9, III, Marine pollutant

RID

UN Number: UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es): 9
Subsidiary Risk: No information available
Packing group: III
Special Provisions: 274, 335, 375, 601
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BIPHENYL), 9, III

ICAO (air)

UN-No: UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Hazard Class: 9
Subsidiary Risk: No information available
Packing Group: III
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Biphenyl), 9, III
Special Provisions: A158, A97, A179, A197

IATA

UN Number: UN3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es): 9
Subsidiary Risk: No information available
Packing group: III
Precautionary Statements - Response: 9L
Special Provisions: No information available
Description: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Biphenyl), 9, III

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
<i>Biphenyl</i>	92-52-4	Present ACTIV E	Present KE-02861	Present	Present (4)-13	Present	Present	Present 202-163-5

U.S. Regulations

Biphenyl
 Massachusetts RTK: Present
 New Jersey RTK Hazardous Substance List: 0795
 New Jersey (EHS) List: 0795 500 lb TPQ

New Jersey - Discharge Prevention - List of Hazardous Substances: Present

Pennsylvania RTK: Environmental hazard

Pennsylvania RTK - Environmental Hazard List Present

Minnesota - Hazardous Substance List: Present

New York Release Reporting - List of Hazardous Substances:

1 lb RQ

Louisiana Reportable Quantity List for Pollutants: Listed

California Directors List of Hazardous Substances: Present

FDA - 21 CFR - Total Food Additives 178.2010

- List Sourced from EAFUS

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Biphenyl	92-52-4	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Biphenyl	92-52-4	100 lb final RQ 45.4 kg final RQ	None	None	None	1.0 % de minimis concentration

U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Biphenyl	92-52-4	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Biphenyl
92-52-4 (100)

WHMIS 2015 Hazard Classification
Specific target organ toxicity - Repeated exposure - Category 1:
H372 Causes damage to organs through prolonged or repeated exposure.; Combustible Dust - Category 1: May form combustible dust concentrations in air (factors such as combustibility and explosiveness of dusts including composition and shape and size of particles could cause substance to belong to 'Combustible dust' hazard class)

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
Biphenyl	92-52-4	Present	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Biphenyl	92-52-4	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Biphenyl	92-52-4	Not listed

EU Classification**EU GHS - SV - CLP 1272/2008**

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Biphenyl	92-52-4	Skin corrosion/irritation - Skin Irrit. 2: H315 Causes skin irritation.; Serious Eye Damage/Eye Irritation - Eye Irrit. 2: H319 Causes serious eye irritation.; Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation.; Hazardous to aquatic environment - acute hazard - Aquatic Acute 1: H400 Very toxic to aquatic life.; Hazardous to aquatic environment - chronic hazard - Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects.601-042-00-8

EU - CLP (1272/2008)**R-phrase(s)**

R50 - Very toxic to aquatic organisms

R53 - May cause long-term adverse effects in the aquatic environment

R36/37/38 - Irritating to eyes, respiratory system and skin

S -phrase(s)

S 7 - Keep container tightly closed.

S36 - Wear suitable protective clothing

S57 - Use appropriate container to avoid environmental contamination

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Biphenyl	92-52-4	Xi; R36/37/38 N; R50-53	No information	S: (2)-23-60-61

The product is classified in accordance with Annex VI to Directive 67/548/EEC**Indication of danger:**

Xi - Irritant

N - Dangerous for the environment

Xi**N****16. OTHER INFORMATION**

Preparation Date: 06/21/2019
Revision date 06/21/2019
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet