

Material Safety Data Sheet

Biphenyl

ACC# 15418

Section 1 - Chemical Product and Company Identification

MSDS Name: Biphenyl

Catalog Numbers: AC106250000, AC106250010, AC106252500

Synonyms: Diphenyl.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
92-52-4	Biphenyl	99	202-163-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white crystals.

Warning! Causes eye, skin, and respiratory tract irritation. May be absorbed through intact skin. May cause liver and kidney damage. May cause central nervous system effects. Dangerous for the environment.

Target Organs: Kidneys, heart, central nervous system, liver, lungs, respiratory system, brain.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes severe skin irritation. May be absorbed through the skin.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause gastric disturbances and electrolytic imbalance. May cause systemic toxic effects on the heart, liver, and kidneys. May cause central nervous system depression.

Inhalation: Dust is irritating to the respiratory tract. Causes irritation of the mucous membrane and upper respiratory tract. Inhalation may cause headache, numbness of the limbs, flaccid paralysis, nausea, or vomiting.

Chronic: Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause liver and kidney damage. May cause digestive tract and cardiac disturbances. Repeated exposure may cause central nervous system damage. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure to vapor concentrations above 0.005 mg/L is considered

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Extinguishing Media: Water spray may cause frothing. Use carbon dioxide, dry chemical, or water fog. Solid streams of water or high volume water jet may spread fire.

Flash Point: 113 deg C (235.40 deg F)

Autoignition Temperature: 540 deg C (1,004.00 deg F)

Explosion Limits, Lower:0.6 vol %

Upper: 5.8 vol %

NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Reduce airborne dust and prevent scattering by moistening with water. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid breathing dust, mist, or vapor. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Biphenyl	0.2 ppm TWA	0.2 ppm TWA; 1 mg/m ³ TWA 100 mg/m ³ IDLH	0.2 ppm TWA; 1 mg/m ³ TWA

OSHA Vacated PELs: Biphenyl: 0.2 ppm TWA; 1 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystals

Appearance: white

Odor: pleasant odor - butter-like

pH: Not available.

Vapor Pressure: 9.46 mmHg @ 115

Vapor Density: 5.31

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 255 deg C

Freezing/Melting Point: 69-72 deg C

Decomposition Temperature: Not available.

Solubility: Insoluble.

Specific Gravity/Density: 0.991

Molecular Formula: C₁₂H₁₀

Molecular Weight: 154.07

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 92-52-4: DU8050000

LD50/LC50:

CAS# 92-52-4:

Draize test, rabbit, eye: 100 mg Mild;

Draize test, rabbit, skin: 500 uL/24H Severe;

Oral, mouse: LD50 = 1900 mg/kg;

Oral, rabbit: LD50 = 2400 mg/kg;

Oral, rat: LD50 = 2140 mg/kg;

Skin, rabbit: LD50 = >5010 mg/kg;

Carcinogenicity:

CAS# 92-52-4:

- **ACGIH:** Not listed.
- **California:** Not listed.
- **NTP:** Not listed.
- **IARC:** Group 2A carcinogen

Epidemiology: Oral, mouse: TDLo = 56 gm/kg (Tumorigenic - equivocal tumorigenic agent by RTECS criteria - Lungs, Thorax, or Respiration - tumors and Blood - tumors).; Subcutaneous, mouse: TDLo = 46 mg/kg (Tumorigenic - neoplastic by RTECS criteria - Lungs, Thorax, or Respiration - tumors and Liver - tumors).

Teratogenicity: No information available.

Reproductive Effects: No information available.

Mutagenicity: Unscheduled DNA Synthesis: Oral, rat = 8400 mg/kg/4W (Continuous).; Mutation in Microorganisms: Mouse, Lymphocyte = 20 umol/L.; DNA Damage: Mouse, Lymphocyte = 50 umol/L.; DNA Damage: Oral, mouse = 2 gm/kg.; Mutation in Mammalian Somatic Cells: Mouse, Lymphocyte = 296 umol/L.; Cytogenetic Analysis: Hamster, Lung = 10 mg/L.; Sister Chromatid Exchange: Hamster, Fibroblast = 100 umol/L.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 1.2-3.3 mg/L; 96 Hr; Flow-through at 10 C Water flea Daphnia: EC50 = 0.63-3.91 mg/L; 48 Hr; (< 24 hrs old) Static at 22.2 C (pH 7.9-8.2) Bacteria: Phytobacterium phosphoreum: EC50 = 1.9-3.3 mg/L; 5,15,30 min; Microtox test at 15C Volatilization from moist soil surfaces will occur, but it is not expected to be significant from dry soil surfaces. Biphenyl readily biodegrades aerobically in both soil and water with an increased rate of biodegradation following acclimation (resistant under anaerobic conditions). Biphenyl will volatilize from water surfaces. Estimated BCF value range = 280-4500. This value range suggests that biphenyl will bioconcentrate in aquatic organisms.

Environmental: Biphenyl will exist in both the vapor phase and the particulate phase in the ambient atmosphere. The biphenyl present in the vapor phase will be degraded by reaction with photochemically-produced hydroxyl radicals with a half-life of 2 days. The particulate phase biphenyl will be removed from the atmosphere by dry deposition.

Physical: No information available.

Other: Harmful to aquatic life in very low concentrations.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Biphenyl Biphenyl	Biphenyl
Hazard Class:	9	9
UN Number:	UN3077	UN3077
Packing Group:	III	III
Additional Info:		Biphenyl

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 92-52-4 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 92-52-4: Effective 4/29/83, Sunset 4/29/93

Chemical Test Rules

CAS# 92-52-4: 40 CFR 799.5115

Section 12b

CAS# 92-52-4: Section 4, 0.1 % de minimus concentration

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 92-52-4: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPO.

SARA Codes

CAS # 92-52-4: immediate, delayed.

Section 313

This material contains Biphenyl (CAS# 92-52-4, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 92-52-4 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 92-52-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XI N

Risk Phrases:

R 36/37/38 Irritating to eyes, respiratory system and skin.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 23 Do not inhale gas/fumes/vapour/spray.

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 92-52-4: 2

Canada - DSL/NDSL

CAS# 92-52-4 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 92-52-4 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 5/18/1999

Revision #6 Date: 5/15/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting

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