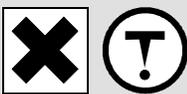


Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system. Possible carcinogenic material. Possible mutagenic material. Environmentally hazardous.	

Section I. Chemical Product and Company Identification

Chemical Name	Diphenyl		
Catalog Number	B0465	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Biphenyl		
Chemical Formula	C ₆ H ₅ C ₆ H ₅		
CAS Number	92-52-4	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Diphenyl	92-52-4	Min. 99.5 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Human TClO (inhalation) 4400 µg/m ³ Rat LD ₅₀ (oral) 2140 mg/kg Mouse LD ₅₀ (oral) 1900 mg/kg Rabbit LD ₅₀ (dermal) >5010mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic: mouse (oral) 56000mg/kg. mouse (subcutaneous) 46000mg/kg. DEVELOPMENTAL TOXICITY Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	540°C (1004°F)
Flash Points	113°C (235.4°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	No specific information is available regarding the flammability of this compound in the presence of various materials.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No additional information is available regarding the risks of explosion.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO ₂ , water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Harmful material. Irritating material. Possible carcinogenic material. Possible mutagenic material. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and exercise caution. Use a shovel to put the material into a convenient waste disposal container. DO NOT touch damaged container or spilled material. Call for assistance on disposal. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	HARMFUL. IRRITANT. POSSIBLE CARCINOGENIC. POSSIBLE MUTAGENIC. Handle with caution and minimize exposure. Keep away from heat and sources of ignition. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. DO NOT breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Avoid contact with skin and eyes. Always store away from incompatible compounds such as oxidizing agents.
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	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.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Pleasant, butter-like odor.	Solubility	Soluble in most organic solvents. Insoluble in water.
Specific Gravity	0.992		
Molecular Weight	154.21	Partition Coefficient	Not available.
Boiling Point	254 to 255°C (489.2 to 491°F)	Vapor Pressure	9.46 mm Hg @ 115°C
Melting Point	69 to 72°C (156.2 to 161.6°F)	Vapor Density	5.31
Refractive Index	1.588 @ 77°C	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents.

Section XI. Toxicological Information

RTECS Number	DU8050000
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Human TCLo (inhalation) 4400 µg/m ³ Rat LD ₅₀ (oral) 2140 mg/kg Mouse LD ₅₀ (oral) 1900 mg/kg Rabbit LD ₅₀ (dermal) >5010mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic: mouse (oral) 56000mg/kg. mouse (subcutaneous) 46000mg/kg. DEVELOPMENTAL TOXICITY Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Biphenyl is synthesized in certain plants and in algae. Biphenyl may be directly released to the environment through the combustion of biomass, coal, oil, plastics, refuse, rubber and wood. Other anthropogenic sources of biphenyl are tobacco smoke, motor vehicles emissions, phthalic anhydride manufacture, coal liquefaction, textile mills and certain dyeing industries. If released to the atmosphere, biphenyl will exist both in the vapor and particulate phases in the ambient atmosphere based on a measured vapor pressure of 8.93X10 ⁻³ mm Hg @ 25°C. Vapor-phase biphenyl is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with a half-life of about 2 days. Particulate-phase biphenyl may be physically removed from the air by dry deposition. Measured Koc values of 870-3300, determined in three soils, suggest that biphenyl will have low to slight mobility in soil. Volatilization from moist soil surfaces may occur based on a measured Henry's Law constant of 4.08X10 ⁻⁴ atm-cu m/mole but should not be significant from dry soil surfaces given biphenyl's vapor pressure. Biphenyl is expected to readily biodegrade aerobically in both soil and water, with increased rates of biodegradation following acclimation, but should be resistant to biodegradation under anaerobic conditions. In a Flanagan siltloam soil, 86% of the originally applied biphenyl was mineralized to carbon dioxide in 98 days; in an Altamont soil, 81% of the biphenyl initially applied was mineralized after 24 days. In an ecocore microcosm study, using water/undisturbed sediment, the primary biodegradation half-life of biphenyl was 2-3 days; mineralization accounted for 38-42% of total biphenyl loss. Biphenyl is expected to adsorb to suspended matter in the water based on its measured Koc values. This compound is expected to volatilize from water surfaces given its measured Henry's Law constant. Estimated half-lives for a model river and model lake are 6 hours and 6 days, respectively. BCF values from 280 to 4500 suggest that biphenyl will bioconcentrate in aquatic organisms. The general population may be exposed to biphenyl through the ingestion of contaminated drinking water and food. Ambient workplace and non-occupational air monitoring data indicates the importance of inhalation as a route of exposure.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of this substance.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 9: Miscellaneous hazardous material.
PIN Number	UN3077
Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s.
Packing Group (PG)	III
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.
WHMIS Classification (Canada)	Not available.
EINECS Number (EEC)	202-163-5
EEC Risk Statements	

Continued on Next Page

Emergency phone number (800) 424-9300

R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.
R45- May cause cancer.
R46- May cause heritable genetic damage.

Japanese Regulatory Data

Not available.

Section XVI. Other Information

Version 1.0

Validated on 10/13/1998.

Printed 1/21/2005.

Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

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