



Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	CARCINOGEN. MINIMIZE EXPOSURE. Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system. Environmental hazard. Reproductive Effector.	

Section I. Chemical Product and Company Identification

Chemical Name	Bis(2-ethylhexyl) Phthalate		
Catalog Number	P0297	Supplier	TCI America 9211 N. Harborside St. Portland OR 1-800-423-8616
Synonym	Di(2-ethylhexyl) Phthalate; Dioctyl Phthalate; Phthalic Acid Bis(2-ethylhexyl) Ester; Phthalic Acid Di(2-ethylhexyl) Ester; Phthalic Acid Dioctyl Ester		
Chemical Formula	C ₂₄ H ₃₈ O ₄		
CAS Number	117-81-7	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
Bis(2-ethylhexyl) Phthalate	117-81-7	Min 98.0 (GC)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD ₅₀ (oral) 30 mg/kg Rabbit LD ₅₀ (dermal) 25 gm/kg Mouse LD ₅₀ (oral) 1500 mg/kg

Section III. Hazards Identification

Acute Health Effects	<p>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.</p> <p>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : TUMORIGENIC Effects. Rat DTLo Oral 519120 mg/kg/103 weeks continuous. TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Liver - Tumors Rat TDLo Oral 216 gm/kg/2 years continuous. TOXIC Effects: Tumorigenic - Carcinogenic by RECS criteria. Liver - Tumors Endocrine - Tumors Rat TDLo Oral 430.8 gm/kg/78 weeks continuous. TOXIC Effects: Tumorigenic - Neoplastic by RTECS criteria Gastrointestinal - Tumors DEVELOPMENTAL TOXICITY: Reproductive Effects. Rat TDLo Intraperitoneal 6 gm/kg, female 3-9 days of pregnancy. TOXIC Effects: Maternal Effects - Parturition Effects on Fertility - Pre-implantation mortality Rat TDLo Oral 6 gm/kg, male 3 Days prior to mating. TOXIC Effects: Paternal Effects - Testes, epididymis, sperm duct Paternal Effects - Prostate, seminal vesicle, Cowper's gland, accessory glands. Rat TDLo Oral 123 gm/kg, female 3-22 Days of pregnancy and 21 days after birth. TOXIC Effects: Effects on Fertility - Litter size Specific Developmental Abnormalities - Urogenital system Effects on Newborn - live birth index Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.</p>

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
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, perform mouth-to-mouth resuscitation. 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.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	390 °C (734 °F)
Flash Points	218 °C (424.4 °F).	Flammable Limits	LOWER: 0.3%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
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.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		


Section VI. Accidental Release Measures

Spill Cleanup Instructions	Carcinogenic Material. Harmful Material. Irritating Material. Environmentally Hazardous Material. Reproductive effecting material. Absorb with an inert material and put the spilled material in an appropriate waste 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	CARCINOGEN. HARMFUL. IRRITANT. ENVIRONMENTAL HAZARD. REPRODUCTIVE EFFECTOR. Keep away from heat. 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 breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, acids, alkalis (bases).
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Light Yellow, Viscous Clear)	Solubility	Miscible with mineral oil, hexane. Very soluble in ethanol, ether, benzene. Slightly soluble in carbon tetrachloride. Insoluble in water.
Specific Gravity	0.99 (water=1)		
Molecular Weight	390.56	Partition Coefficient	Log P _{ow} : 5.03
Boiling Point	361 °C (681.8 °F)	Vapor Pressure	0.001 kPa (@ 20 °C)
Melting Point	-50 °C (-58 °F)	Vapor Density	13.45 (Air = 1)
Refractive Index	1.49	Volatility	Not available.
Critical Temperature	Not available.	Odor	Slight.
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, acids, alkalis (bases), and nitrates.

Section XI. Toxicological Information

RTECS Number	TI0350000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 30 mg/kg Rabbit LD ₅₀ (dermal) 25 gm/kg Mouse LD ₅₀ (oral) 1500 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : TUMORIGENIC Effects. Rat DTL _o Oral 519120 mg/kg/103 weeks continuous. TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Liver - Tumors Rat TDLo Oral 216 gm/kg/2 years continuous. TOXIC Effects: Tumorigenic - Carcinogenic by RECTS criteria. Liver - Tumors Endocrine - Tumors Rat TDLo Oral 430.8 gm/kg/78 weeks continuous. TOXIC Effects: Tumorigenic - Neoplastic by RTECS criteria Gastrointestinal - Tumors DEVELOPMENTAL TOXICITY : Reproductive Effects. Rat TDLo Intraperitoneal 6 gm/kg, female 3-9 days of pregnancy. TOXIC Effects: Maternal Effects - Parturition Effects on Fertility - Pre-implantation mortality Rat TDLo Oral 6 gm/kg, male 3 Days prior to mating. TOXIC Effects: Paternal Effects - Testes, epididymis, sperm duct Paternal Effects - Prostate, seminal vesicle, Cowper's gland, accessory glands. Rat TDLo Oral 123 gm/kg, female 3-22 Days of pregnancy and 21 days after birth. TOXIC Effects: Effects on Fertility - Litter size Specific Developmental Abnormalities - Urogenital system Effects on Newborn - live birth index Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
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	Bis(2-ethylhexyl)phthalate has been reported to be a possible natural product in animals and plants. Bis(2-ethylhexyl)phthalate has been found in floor tiles, various types of furnishings for households and transportation vehicles, food packaging systems, industrial tubing and conduits, medical tubing, catheters and blood containers, certain types of dental material, coatings for drugs, and numerous other products. Bis(2-ethylhexyl)phthalate's production and use as a plasticizer and as an insulating fluid in electrical transformers may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 7.23X10 ⁻⁸ mm Hg suggests this compound will exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase bis(2-ethylhexyl)phthalate will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 18 hours. Particulate-phase bis(2-ethylhexyl)phthalate will be physically removed from the atmosphere by wet and dry deposition. Half-lives for the reaction of gas-phase hydroxyl radicals with bis(2-ethylhexyl)phthalate adsorbed onto various aerosols were as follows, days: 1.1 on silicon dioxide; 1.2 on aluminum oxide; 1.3 on iron(III) oxide; and 2.0 on coal fly ash. After 14 hours irradiation with a 300 W xenon lamp, evolved carbon dioxide reached 0.5 to 0.7 mg/g bis(2-ethylhexyl)phthalate; 2-ethyl-1-hexene, 2-ethylhexanol, and phthalic acid were identified in the irradiated residue. If released to soil, measured Koc values ranging from 87,420 to 510,000 indicate bis(2-ethylhexyl)phthalate will be immobile. Volatilization is not expected to be an important process from wet or dry soil surfaces based upon an estimated Henry's Law constant of 1.3X10 ⁻⁷ atm-cu m/mole and this compound's measured vapor pressure, respectively. Biodegradation is expected to be an important process in both water and soil under aerobic conditions. Mineralization rates ranged from 50% after 20 days in Erie silt loam to 22 to 32% in three soils after 60 days. River die-away tests have reported half-lives of 2 to 3 weeks. It was biodegraded with a half-life of 60 to 70 hours in groundwater impacted by bis(2-ethylhexyl)phthalate, ethylbenzene, and xylenes. If released into water, measured soil/sediment Koc values ranging from 87,420 to 510,000 and suspended solid Koc values ranging from 22,000 to 1X10 ⁺⁶ indicate bis(2-ethylhexyl)phthalate will adsorb to suspended solids and sediment in the water column. Volatilization from water surfaces is not expected to occur based upon the estimated Henry's Law constant. Hydrolysis is not expected to be an important process based upon a half-life of 2000 years at pH 7. Measured BCFs of 115 and 851 in bluegill sunfish and fathead minnows indicate bioconcentration in aquatic organisms will be high. However, experiments with rainbow trout showed that the majority of (14)C-bis(2-ethylhexyl)phthalate did not reach the systemic circulation of the fish, but was present in the exposure water as metabolites as a result of presystemic branchial metabolism of this compound. Occupational exposure to bis(2-ethylhexyl)phthalate may occur through inhalation of

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Emergency phone number (800) 424-9300

aerosols and dermal contact with this compound at workplaces where bis(2-ethylhexyl)phthalate is produced or used. The general population may be exposed to bis(2-ethylhexyl)phthalate via inhalation of ambient air, ingestion drinking water, and dermal contact with products containing this compound.

Section XIII. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local 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 the substance.

Section XIV. Transport Information

DOT Classification DOT CLASS 9: Miscellaneous Material

PIN Number UN3082

Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.

Packing Group (PG) III R3 (100 lbs (45.4 kg))

DOT Pictograms



Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) On DSL.

EINECS Number (EEC) 204-211-0

EEC Risk Statements R45- May cause cancer.
R46- May cause heritable genetic damage.
R47- May cause birth defects.
R50- Very toxic to aquatic organisms.
R53- May cause long-term adverse effects in the aquatic environment.
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data ENCS No. 3-1307

Section XVI. Other Information

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Notice to Reader

TCI 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.