

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	<p><b>Environmental hazard.</b>                      This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.  <b>POSSIBLE CARCINOGEN. MINIMIZE EXPOSURE.</b>                      Harmful compound, minimize exposure.                      Irritating to skin, eyes, and the respiratory system.                      Photosensitizer.                      Lachrymator.</p>	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Anthracene</b>		
Catalog Number	A0495	Supplier	TCI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	C <sub>14</sub> H <sub>10</sub>		
CAS Number	120-12-7	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Anthracene	120-12-7	Min. 96.0 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.	Mouse LD <sub>50</sub> (intraperitoneal) 430 mg/kg Mouse LD <sub>50</sub> (oral) 4900 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.                      Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburn-like responses to edematous, vesiculated lesions or bullae.                      Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Not available.  <b>MUTAGENIC EFFECTS</b> : Not available.  <b>TERATOGENIC EFFECTS</b> :                      Rat TDLo (Oral) 20 gm/kg/79 weeks intermittent                      Toxic Effects:                      Tumorigenic - Equivocal tumorigenic agent by RTECS criteria                      Liver - Tumors                      Rat TDLo (Subcutaneous) 3300 mg/kg/33 weeks intermittent                      Toxic Effects:                      Tumorigenic - Neoplastic by RTECS criteria                      Tumorigenic - Tumors at site of application  <b>DEVELOPMENTAL TOXICITY</b>: Not available.                      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. Photosensitizer.
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	538 °C (1000.4 °F)
Flash Points	121 °C (249.8 °F).	Flammable Limits	LOWER: 0.6%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ).		
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	Environmentally hazardous material. Possible carcinogenic material. Harmful material. Irritating material. Lachrymatory material. Photosensitizing material. Use a shovel to put the material into a convenient waste disposal container. Consult federal, state, and/or local authorities for assistance on disposal.
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**Section VII. Handling and Storage**

Handling and Storage Information	ENVIRONMENTAL HAZARD. POSSIBLE CARCINOGEN. HARMFUL. IRRITANT. LACHRYMATOR. PHOTSENSITIZER. 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 dust. 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. Dust 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 possible carcinogen. There is no acceptable exposure limit for a carcinogen.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Solid. (Crystal, powder. White, slightly pale yellow green, beige.)	Solubility	Soluble in hot toluene. Slightly soluble in alcohol, benzene, acetone, chloroform, and other organic solvents. Insoluble in water.
Specific Gravity	1.25 (water=1)	Partition Coefficient	LOG P <sub>ow</sub> : 4.5
Molecular Weight	178.23	Vapor Pressure	0.08Pa/25°C
Boiling Point	342°C (647.6°F)	Vapor Density	6.15 (Air = 1)
Melting Point	218°C (424.4°F)	Volatility	Not available.
Refractive Index	Not available.	Odor	Weakly aromatic.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	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. Photosensitizer. Dust explosion hazard.
Incompatibilities	Reactive with strong oxidizing agents, hypochlorides, chromic acids, fluorine.

**Section XI. Toxicological Information**

RTECS Number	CA9350000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Mouse LD <sub>50</sub> (intraperitoneal) 430 mg/kg Mouse LD <sub>50</sub> (oral) 4900 mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Rat TDLo (Oral) 20 gm/kg/79 weeks intermittent Toxic Effects: Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Liver - Tumors Rat TDLo (Subcutaneous) 3300 mg/kg/33 weeks intermittent Toxic Effects: Tumorigenic - Neoplastic by RTECS criteria Tumorigenic - Tumors at site of application <b>DEVELOPMENTAL TOXICITY</b> : Not available. 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. Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburn-like responses to edematous, vesiculated lesions or bullae. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.


**Section XII. Ecological Information**

Ecotoxicity	Not available.
Environmental Fate	Anthracene occurs in fossil fuels and is also released to the environment as a product of incomplete combustion of organic matter. If released to air, anthracene's extrapolated vapor pressure of 2.67X10 <sup>-6</sup> mm Hg at 25 deg C indicates this compound will exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase anthracene 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 3.4 hours. Particulate-phase anthracene will be physically removed from the atmosphere by wet and dry deposition. If released to soil, measured Koc values ranging from 2600 to 8600 indicate anthracene is expected to have slight to no mobility. Volatilization of anthracene from dry soil surfaces is not expected to be an important fate process based on its extrapolated vapor pressure. Anthracene is expected to volatilize slowly from moist soil surfaces based upon its measured Henry's Law constant of 4.88X10 <sup>-5</sup> atm-cu m/mole. However, adsorption to organic matter may attenuate this process. Biodegradation in soil is expected to be an important fate process based upon half-lives in unacclimated soils ranging from 50 to 134 days. If released into water, anthracene is expected to adsorb to suspended solids and sediment in the water column based upon Koc values ranging from 2600 to 8600. Volatilization from water surfaces is expected to occur given this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 1.2 and 13 days, respectively. However, volatilization is expected to be attenuated by adsorption to suspended solids and sediment in the water. Measured BCFs ranging from 162 to 9200 indicate bioconcentration in aquatic organisms is moderate to very high. Humic substances in water may reduce the bioavailability of anthracene to aquatic organisms based on aqueous soil humic acid solution Koc values ranging from 7.1X10 <sup>+4</sup> to 1.3X10 <sup>+5</sup> . Hydrolysis is not expected to be an important process due to the lack of hydrolyzable functional groups. Biodegradation is expected to be slow in aquatic systems. 5% conversion to CO <sub>2</sub> was observed in 18 hr in Third Creek water, no degradation of anthracene was observed in water from Walker Branch; no degradation of anthracene was observed in estuarine water collected in April from the Skidway River, GA, after 24 hours. Anthracene was confirmed to be poorly or non-biodegradable in MITI tests. Occupational exposure to anthracene may occur through inhalation of air contaminated with products of incomplete combustion and dermal contact with soot, motor oil and coal tar. The general population will be exposed to anthracene through the smoking of tobacco, inhalation of particulate matter in air and ingestion of food and water.

**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.
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**Section XIV. Transport Information**

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

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	On DSL.
EINECS Number (EEC)	204-371-1
EEC Risk Statements	R51- 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. R45- May cause cancer.
Japanese Regulatory Data	ENCS no.: 4-683; 4-583

**Section XVI. Other Information**

**Version 1.0**  
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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.

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