

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
   	<p>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</p> <p>Environmental hazard.</p> <p>This material is very toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.</p> <p>Irritating to skin, eyes, and the respiratory system.</p> <p>Stench -- do not inhale, use under a fume hood.</p> <p>Air and light sensitive material.</p> <p><b>CARCINOGEN. MINIMIZE EXPOSURE.</b></p>	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Indole</b>		
Catalog Number	I0021	Supplier	TCI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	1H-Indole (CA INDEX NAME)		
Chemical Formula	C <sub>8</sub> H <sub>7</sub> N		
CAS Number	120-72-9	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
Indole	120-72-9	Min. 99.0 (GC)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD <sub>50</sub> (oral) 1000 mg/kg Rabbit LD <sub>50</sub> (dermal) 790 mg/kg Mouse LD <sub>50</sub> (intraperitoneal) 117 mg/kg

## Section III. Hazards Identification

Acute Health Effects	<p>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>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material.</p> <p>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria.</p> <p><b>MUTAGENIC EFFECTS</b> : Not available.</p> <p><b>TERATOGENIC EFFECTS</b> : Tumorigenic effects.</p> <p>Mouse TD Subcutaneous 2000 mg/kg for 20 weeks intermittent</p> <p><b>TOXIC EFFECTS:</b></p> <p>Tumorigenic - Equivocal tumorigenic agent by RTECS criteria.</p> <p>Tumorigenic - Tumor types after systematic administration not seen spontaneously.</p> <p>Mouse TD Subcutaneous 1200 mg/kg for 93 weeks continuous</p> <p><b>TOXIC EFFECTS:</b></p> <p>Tumorigenic - Equivocal tumorigenic agent by RTECS criteria.</p> <p>Lung, Thorax, or Respiration - Tumors</p> <p>Blood - Leukemia</p> <p>Mouse TD<sub>Lo</sub> Subcutaneous 1000 mg/kg for 25 weeks intermittent</p> <p><b>TOXIC EFFECTS:</b></p> <p>Tumorigenic - Carcinogenic by RTECS criteria</p> <p>Blood - Leukemia</p> <p><b>DEVELOPMENTAL TOXICITY:</b> Not available.</p> <p>Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</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 for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
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.

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Emergency phone number (800) 424-9300

**Section V. Fire and Explosion Data**

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	122°C (251.6°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</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	Toxic material. Environmentally hazardous material. Irritating material. This material produces an irritating stench. Air and light sensitive material. Carcinogenic material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.
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**Section VII. Handling and Storage**

Handling and Storage Information	TOXIC. ENVIRONMENTAL HAZARD. IRRITANT. STENCH. AIR AND LIGHT SENSITIVE. CARCINOGEN. Keep locked up.. 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 ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. 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. A MSHA/NIOSH approved respirator must 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 carcinogen. There is no acceptable exposure limit for a carcinogen.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Solid. (White crystalline powder.)	Solubility	Soluble in hot water, hot alcohol, ether, ethanol, benzene.
Specific Gravity	1.22 (water=1)		
Molecular Weight	117.15	Partition Coefficient	Not available.
Boiling Point	253°C (487.4°F)	Vapor Pressure	Not applicable.
Melting Point	53°C (127.4°F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Intense fecal odor.
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. Air and light sensitive.
Incompatibilities	Reactive with oxidizing agents.

**Section XI. Toxicological Information**

RTECS Number	NL2450000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 1000 mg/kg Rabbit LD <sub>50</sub> (dermal) 790 mg/kg Mouse LD <sub>50</sub> (intraperitoneal) 117 mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic effects. Mouse TD Subcutaneous 2000 mg/kg for 20 weeks intermittent <b>TOXIC EFFECTS:</b> Tumorigenic - Equivocal tumorigenic agent by RTECS criteria. Tumorigenic - Tumor types after systematic administration not seen spontaneously. Mouse TD Subcutaneous 1200 mg/kg for 93 weeks continuous <b>TOXIC EFFECTS:</b> Tumorigenic - Equivocal tumorigenic agent by RTECS criteria. Lung, Thorax, or Respiration - Tumors Blood - Leukemia Mouse TDLo Subcutaneous 1000 mg/kg for 25 weeks intermittent <b>TOXIC EFFECTS:</b> Tumorigenic - Carcinogenic by RTECS criteria Blood - Leukemia <b>DEVELOPMENTAL TOXICITY:</b> 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	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. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

**Section XII. Ecological Information**

Ecotoxicity	Not available.
Environmental Fate	Indole's production and use as a chemical intermediate, a perfume fixative, a synthetic flavor and possibly as a kairomone (a volatile chemical released by a plant to attract phytophagous insects) may result in its release to the environment through various waste streams. Indole is released directly to the environment as a component of tobacco smoke and occurs naturally in coal tar, jasmine oil and orange-blossom oil. If released to the atmosphere, indole will mainly exist in the vapor phase based on a experimental vapor pressure of 0.0122 mm Hg at 25 deg C. Vapor-phase indole is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals, nitrate radicals, and ozone with estimated half-lives of about 2 to 3 hours.

**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 6.1: Toxic material.
PIN Number	UN2811
Proper Shipping Name	Toxic solid, organic, 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)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC). On DSL.
EINECS Number (EEC)	204-420-7
EEC Risk Statements	

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Emergency phone number (800) 424-9300

R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.  
R36/37/38- Irritating to eyes, respiratory system and skin.  
R41- Risk of serious damage to eyes.  
R45- May cause cancer.  
R50- Very toxic to aquatic organisms.  
R53- May cause long-term adverse effects in the aquatic environment.

Japanese Regulatory Data

ENCS No. 5-130

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 11/24/2008.**  
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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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