

School Material Safety Data Sheet

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INDOLEACETIC ACID

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SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME AND FORMULA: INDOLEACETIC ACID: $C_{10}H_9NO_2$

SYNONYMS: Indole-3-Acetic Acid; Heteroauxin, IAA, 3-IAA; IA; Betal-indoleacetic Acid; $C_3H_5NCH_2COOH$

CAS NO. 0087-51-4

TYPICAL COMPOSITION: Indoleacetic Acid; ca 100%

DOT CLASSIFICATION: Not Listed

EPA CLASSIFICATION: Not Listed

MANUFACTURER'S INFORMATION: Always request material safety data sheets from your chemical supplier. These should indicate the manufacturer's emergency telephone number. See the Resources/Manufacturers Index for some of the larger manufacturers and available telephone numbers.



DESCRIPTION: Leaflets or crystalline powder. No information on its odor was found.

PRELIMINARY INFORMATION: Indoleacetic acid is a plant hormone (growth regulator). It has many uses in a school biology lab, including investigating the processes of plant growth, flowering, and leaf drop. Indoleacetic acid is considered low in toxicity and should present few hazards if used with care and reasonable precautions are taken.

SECTION 2. USE AND STORAGE INFORMATION

— PRELIMINARY PLANNING CONSIDERATIONS —

- **PROVIDE FOR SAFE DISPOSAL OF ALL CHEMICAL WASTE** generated in the lab. Check applicable regulations prior to use.
- **Wear safety glasses or goggles** and appropriate protective clothing (rubberized apron, etc.) during all experiments.
- Be sure that eyewash station and safety shower are in good working order.
- Provide adequate ventilation
- Eliminate all possible sources of ignition.
- Rubber gloves are recommended to minimize skin contact when working with this material.

— USAGE PRECAUTIONS AND PROCEDURES —

- **READ THE LABEL** and follow all precautions.
- Practice good housekeeping to avoid unintentional mixing of incompatible materials. Do not allow residues or dust to build up in the lab or work area.
- For safety, **DO NOT WEAR CONTACT LENSES IN THE LABORATORY**; soft lenses may absorb irritants, and all lenses may concentrate them. Particles can also adhere to contact lens surfaces and cause corneal damage.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- Do not smoke in storage or use area.
- Keep indoleacetic acid away from strong oxidizing agents and sources of heat or ignition.
- Remove grossly contaminated clothing and launder it before wearing it again.
- Keep this material away from notebooks, textbooks, and personal belongings to avoid contamination and the transport of chemical residues out of the lab/work area.
- Do not let indoleacetic acid come into contact with eyes, skin, or clothing. Avoid inhaling the dust or solution mist from this chemical.
- Do not taste or swallow this substance.
- Clean up spilled material promptly and thoroughly.
- Do not heat indoleacetic acid to the point of decomposition; toxic and irritating gases can be produced (see sect. 6).
- Indoleacetic paste for plant growth experiments is prepared with alcohol (Genium School MSDS 180) and lanolin paste. The alcohol may add to the hazardous nature of this material.

— ADDITIONAL INFORMATION —

Indoleacetic acid does not polymerize. It is stable at room temperature under normal conditions of handling and storage.

- Incompatible materials include strong oxidizing agents such as permanganates and nitrates.

— PREFERRED STORAGE LOCATION AND METHODS —

- Storage area should be cool and well ventilated. Containers should be tightly closed.
- Do not store chemicals alphabetically by name; store them by chemical family, instead, to keep compatibles together.
- Protect all chemical containers from physical damage and keep them out of direct sunlight.
- Do not permit smoking in areas where chemicals are stored.
- Purchase only amounts equivalent to one year's needs.
- Store with compatible materials on sturdy shelving away from oxidizers.

SECTION 3. SPILLS AND DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Ventilate area of spill.
- Clean up spilled material promptly and thoroughly.
- Eliminate all possible sources of ignition.
- Cleanup personnel should wear personal protective equipment to prevent skin or eye contact and inhalation of dust.
- For liquid (solution) spills, cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop it into an appropriate container (with a secure lid) for disposal in accordance with existing regulations. Dike the spill area with an inert absorbent material, as needed, to contain the spilled material.
- Sweep, vacuum, or scoop up spilled solid, avoiding generation of dust. Place it in a suitable container (with a secure lid) for later disposal.

DISPOSAL OF SMALL QUANTITIES:

NOTE: Emptied containers could contain chemical residues; handle with care.

- Small quantities of waste material may be burned in an incinerator if approved methods and applicable regulations are followed. A scrubber may be required to remove nitrogen oxides produced by burning.
- If the method described above is not practical, feasible, or in accord with existing regulations, contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.

FOR THE DISPOSAL OF LARGER AMOUNTS contact a licensed disposal company.

**** FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL ****

SECTION 4: HEALTH HAZARDS

Indoleacetic acid has not been identified as a known or suspected carcinogen by the NTP, IARC, or OSHA.

Current OSHA PEL and ACGIH TLV: 8-hr TWA: No exposure limits found.

Toxicity data:

- Mouse, Intraperitoneal, LD₅₀: 500 mg/kg
- See NIOSH, *RTECS*, for additional data with references to mutagenic, tumorigenic, and reproductive effects.
- Since indoleacetic acid is considered to be low in toxicity, it should be relatively nonhazardous for routine laboratory use while taking reasonable precautions.
- Skin contact, eye contact, or inhalation of indoleacetic dust could cause mild irritation of the tissue involved.
- No chronic effects have been reported in the sources cited below.
- Side effects of exposure can include kidney injury, hepatitis, and gastrointestinal irritation.
- Indoleacetic acid paste, prepared with alcohol and lanolin, may present additional hazards because of the ethyl alcohol present (see Genium School MSDS 180).

SECTION 5: FIRST AID PROCEDURES

Eye contact:

- Flush eyes promptly, including under the eyelids, with plenty of running water. Continue for at least 15 minutes.
- Get medical attention if irritation persists.*

Skin contact:

- Wash exposed areas of skin with soap and water.
- Remove grossly contaminated clothing promptly.
- Get medical attention if irritation occurs.*

Inhalation:

- Remove victim to fresh air; restore/support his breathing as necessary.
- Get medical help if victim is breathing with difficulty or coughing.*

Ingestion:

- Rinse victim's mouth thoroughly with water.
- Give victim several glasses of milk or water to drink. Do not induce vomiting unless instructed by a physician to do so.
- Never give anything by mouth to someone who is unconscious or convulsing.

* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

SECTION 6: FIRE PROCEDURES AND DATA

- Indoleacetic acid is a combustible solid; however, the small quantities of this material normally found in a school environment would make it nearly insignificant in a fire situation.
- Extinguishing media: water, fog, carbon dioxide, dry chemical, or alcohol type of foam.
- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.
- Use of a direct stream of water may not be effective and could scatter the fire.
- A water spray may be used to cool fire-exposed containers and disperse vapors.

HAZARDOUS DECOMPOSITION PRODUCTS INCLUDE: Toxic and irritating gases such as nitrogen oxides (NO_x), carbon monoxide (CO), and carbon dioxide (CO₂).

FLASH POINT: Not Found

AUTOIGNITION TEMPERATURE: Not Found

FLAMMABILITY LIMITS IN AIR (Vol %): Not Found

SECTION 7: PHYSICAL DATA

BOILING POINT (@ 1 atm.): Not Found

VAPOR PRESSURE (@ 20°C, mm Hg): Negligible

SOLUBILITY IN WATER (@ 20°C): Insoluble*

pK: 4.75

SPECIFIC GRAVITY: Not Found

MELTING POINT: 334-338°F (168-170°C)

MOLECULAR WEIGHT: 175.2

% VOLATILE: Negligible

*Soluble in alcohol, acetone, and ether.

REFERENCES: Genium Industrial MSDS 655 (4/88) and references 1, 5, 7, 73, 81-94, 103, 506, 521.

(See References for details)

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