

# MATERIAL SAFETY DATA SHEET

## I. PRODUCT IDENTIFICATION

**TRADE NAME:** Acrylamide/Bis Solutions

**Catalog No.:** 161-0144, 161-0145, 161-0146, 161-0147, 161-0148, 161-0149, 161-0154, 161-0155, 161-0156, 161-0157, 161-0158, 161-0159, 161-0244, 161-0246, 161-0248, 161-0254, 161-0256, 161-0258, 161-0140, 161-0142, IN D GENE KITS # 170-9032, 170-9058.

**Chemical identity, Common names:** Propenamide; 2-propenamide/N,N"-Methylenebisacrylamide; bis acrylamide

**Chemical Family:** Amide

**Formula:** CH<sub>2</sub>=CHCONH<sub>2</sub>/(CH<sub>2</sub>CHCONH<sub>2</sub>)<sub>2</sub>CH<sub>2</sub>

**Molecular Weight:** 71.06/154.17

**MANUFACTURER'S NAME:**  
**BIO-RAD LABORATORIES**  
**2000 ALFRED NOBEL DR.**  
**HERCULES, CALIFORNIA 94547**

**EMERGENCY PHONE No:**  
**5 1 0 / 2 3 2 - 7 0 0 0**

**DATE PREPARED OR REVISED:** January 27, 1995

**NAME OF PREPARER:** Roy Wood

## II. HAZARDOUS INGREDIENTS

This product contains the following toxic chemical subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

<u>CHEMICAL NAMES</u>	<u>CAS NUMBERS</u>	<u>PERCENT</u>	<u>EXPOSURE LIMITS IN AIR</u>		
			<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER</u>
Acrylamide	000079-06-1	0-40%	0.03 mg/m <sup>3</sup> (S) (TWA)	0.03mg/m <sup>3</sup> (S) (TWA)	†
N,N'-Methylenebisacrylamide	110-26-9	0.2%	no information found		

Sold as 30ml or 500ml bottles of 30 or 40% aqueous solutions of acrylamide and methylenebisacrylamide or a mix. TWA=8-hour Time Weighted Average with a "skin" notation. † LD50:295 orl-rat

## III. PHYSICAL/CHEMICAL CHARACTERISTICS

**BOILING POINT:** 105° C at 25 mm Hg

**SPECIFIC GRAVITY**(H<sub>2</sub>O = 1): 1.04 at 30° C (86° F)

**VAPOR PRESSURE:** similar to water

**MELTING POINT:** no data available

**VAPOR DENSITY**(AIR = 1): similar to water

**EVAPORATION RATE** (BUTYL ACETATE = 1): similar to water

**SOLUBILITY IN WATER:** infinite

**APPEARANCE AND COLOR:** Clear, colorless and odorless.

## IV. FIRE AND EXPLOSION HAZARD DATA

**FLASH POINT:** N/A

**FLAMMABLE LIMITS:** N/A

**(METHOD USED):** N/A

**EXTINGUISHING MEDIA:** Not flammable until all liquid has boiled off. Use carbon dioxide, dry chemical, or water spray for surrounding fire.

**SPECIAL FIRE FIGHTING PROCEDURES:** Fire fighters should wear self-contained breathing apparatus and full protective clothing. Do not use high-pressure water stream. Airborne dust creates an explosion hazard.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** May polymerize violently. Avoid temperatures above 90° F, initiators such as bisulfites, peroxides, reducing agents, oxidizing agents.

## V. HEALTH HAZARD INFORMATION

**SYMPTOMS OF OVEREXPOSURE** (for each potential route of exposure):

**INHALED:** Material should be handled in a hood to avoid exceeding local TWA. Airborne acrylamide is readily absorbed through the lung and overexposure will produce signs and symptoms similar to those described in "SWALLOWED".

**CONTACT WITH SKIN OR EYES:** Can produce conjunctival eye irritation and can lead to systemic exposure if contact is prolonged and/or repeated. May cause peeling and redness of skin.

**ABSORBED THROUGH SKIN:** Readily absorbed through unbroken skin. Signs and symptoms as in "SWALLOWED" but preceded by peeling and redness of skin of fingers and hands.

**SWALLOWED:** Neurotoxicity can result after a single ingestion but is more likely to occur after ingestion of small amounts over a period of several days or weeks. Signs and symptoms include increased sweating of hands and feet, numbness, tingling and weakness in extremities, unsteady gait, an decreased reflexes.

## HEALTH EFFECTS OR RISKS FROM EXPOSURE

**ACUTE:** Increased sweating of hands and feet, numbness, drowsiness, tingling and weakness in extremities, unsteady gait, and decreased reflexes.

**CHRONIC:** Suspected Human Carcinogen (ACGIH). Repeated skin contact, inhalation, or swallowing may cause nervous system disturbances.

An early sign of overexposure is peeling of the skin of the fingertips. Patients should be monitored for at least 2-3 weeks and observed for signs of delayed neurotoxicity. Acute and chronic exposure may lead to weak or absent reflexes, positive Romberg's sign, loss of vibration and position senses, and numbness and tingling of the limbs.

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**FIRST AID: EMERGENCY PROCEDURES**

**EYE CONTACT:** Flush eyes with large amounts of water for at least 15 minutes, lifting upper and lower eyelids occasionally. If irritation persists, get medical attention.

**SKIN CONTACT:** Flush skin with large amounts of water for at least 15 minutes, while removing contaminated clothing and shoes. Wash clothes before reuse. Get medical attention.

**INHALED:** Remove to fresh air at once. If not breathing, give artificial respiration. Get medical attention if signs or symptoms of intoxication exist.

**SWALLOWED:** If conscious, for large single ingestion, induce vomiting by giving syrup of ipecac, 30 ml, followed by two glasses of water. If ipecac is not available, touch back of throat with spoon or finger. Never give anything by mouth to unconscious or convulsing person. Get medical attention immediately.

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**SUSPECTED CANCER AGENT**

NO: THIS PRODUCT'S INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW. (See "chronic" page 1)

YES:  FEDERAL OSHA  NTP  IARC (group 2 "may reasonably be anticipated to be carcinogens")

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**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Persons with preexisting skin disorders, eye problems, or central or peripheral nervous system conditions may be more susceptible to the effects of this substance.

**VI. REACTIVITY DATA**

**STABLE:**  **UNSTABLE**

**CONDITIONS TO AVOID:** Avoid temperatures above 90° F.

**INCOMPATIBILITY**(Materials to avoid): Oxidizing agents, reducing agents, acids, bases, and vinyl polymerization initiators. Also iron, copper, aluminum, brass, and bronze.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition may produce carbon monoxide and/or carbon dioxide, ammonia, and NO<sub>x</sub> (nitrogen oxides)

**HAZARDOUS POLYMERIZATION MAY OCCUR**  **WILL NOT OCCUR**

**CONDITIONS TO AVOID:** Avoid temperatures above 90° F.

**VII. SPILL, LEAK, AND DISPOSAL PROCEDURES**

**SPILL RESPONSE PROCEDURES:** Spills of acrylamide solutions must be promptly removed. To handle small laboratory spills, wear appropriate protective equipment and clothing, as detailed in Section VIII, during clean up procedures. Cover a liquid spill with an absorbent material, pick up and place in a suitable container for reclamation or disposal.

**PREPARING WASTES FOR DISPOSAL:** To dispose of small laboratory amounts of acrylamide/Bis monomer solutions, polymerize the acrylamide to polyacrylamide gel in the following manner: Carefully make 100 ml of a 10-20 w/v % acrylamide solution in water and place it in a plastic bag that lines a 250-500 cc beaker. Add 500 uL 10% ammonium persulfate and 100 uL TEMED, stir, and allow to polymerize for 1 hr. Comply with all applicable local, state, and federal regulations on spill reporting, waste handling, and waste disposal.

**VIII. SPECIAL HANDLING INFORMATION**

**VENTILATION AND ENGINEERING CONTROLS:** A closed system should be employed. Where this is not possible utilize enclosures and local exhaust ventilation to prevent and/or control skin contact, dust generation, and vapor release. After acrylamide is in solution, exposure to liquid and mist must be controlled.

**RESPIRATORY CONTROLS:** NIOSH does not approve a cartridge for use with acrylamide. However, tests conducted by American Cyanamid show that organic vapor cartridges provide protection up to 10x the permissible exposure level.

**EYE PROTECTION:** Chemical safety goggles and/or full face shield and head covering should be worn as necessary to prevent eye and scalp contact. Maintain eye wash fountain and quick-drench facilities in work area.

**GLOVES:** Wear clean impervious rubber or plastic gloves.

**OTHER CLOTHING AND EQUIPMENT:** Rubber shoes and long sleeved coveralls or suitable lab coat should be provided daily.

**WORK PRACTICES, HYGIENIC PRACTICES:** Do not carry or consume food, gum, tobacco products, or drinks in the work area. Wash hands thoroughly after using and before eating or smoking. Wear clean work clothing daily. Showering and clothing change before leaving the plant is mandatory. Work clothing and shoes must not be taken home.

**OTHER HANDLING AND STORAGE REQUIREMENTS:** Keep in tightly sealed container. Store at 4° C in a well-ventilated place away from incompatible materials.

**PROTECTIVE MEASURES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Wear protective clothing and appropriate respiratory protection. Do not cut, grind, weld, or drill on or near container.

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We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and conditions of use of the product are not within the control of Bio-Rad, it is the user's responsibility to handle the product under conditions of safe use.