



8430 Juniper Creek Lane


San Diego, CA 92126

www.geneseesci.com

800) 789.5550

MATERIAL SAFETY DATA SHEET

N,N'-Methylene-bis-Acrylamide

| NPFA | HMIS | Personal Protective Equipment | | | | | | | | | | |
|---|--|-------------------------------|---|--------------|---|------------|---|-----|---|---|--|---|
|  | <table><tr><td>HEALTH</td><td>3</td></tr><tr><td>FLAMMABILITY</td><td>1</td></tr><tr><td>REACTIVITY</td><td>1</td></tr><tr><td>PPE</td><td>C</td></tr></table> | HEALTH | 3 | FLAMMABILITY | 1 | REACTIVITY | 1 | PPE | C |  |  |  |
| HEALTH | 3 | | | | | | | | | | | |
| FLAMMABILITY | 1 | | | | | | | | | | | |
| REACTIVITY | 1 | | | | | | | | | | | |
| PPE | C | | | | | | | | | | | |

In Case of Emergency: Call ChemTrac (24 hr): 800-424-9300, 703-527-3887 Call (330)425-2522

1. Product Identification

Synonyms: N,N'-methylenebis-2-propenamide

CAS No.: 110-26-9

Molecular Weight: 154.19

Chemical Formula: $(H_2C=CHCONH)_2CH_2$

Product Codes: 20-129

2. Composition/Information on Ingredients

| Ingredient | CAS No | Percent | Hazardous |
|-----------------------------|----------|-----------|-----------|
| N,N'-Methylenebisacrylamide | 110-26-9 | 90 - 100% | Yes |

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED. MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY AFFECT CENTRAL NERVOUS SYSTEM.

Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate (Life)

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

Potential Health Effects

There is limited information available on the hazards of this chemical. It is assumed that it will behave similarly to other unsaturated amides.

Inhalation:

Dust inhalation of unsaturated amides may cause drowsiness, tingling sensations, fatigue, weakness, stumbling, slurred speech, and shaking.

Inhalation studies with this compound has produced acute pulmonary edema in animals. Effects in humans not known.

Ingestion:

Toxic! Unsaturated amides cause systemic poisoning with symptoms including drowsiness, tingling sensations, fatigue, weakness, stumbling, slurred speech and shaking.

Skin Contact:

Unsaturated amides cause irritation and redness. Solutions may be absorbed through the skin causing systemic poisoning; symptoms may parallel ingestion.

Eye Contact:

Causes irritation, redness, and pain.

Chronic Exposure:

Prolonged or repeated exposure to unsaturated amides through any route may cause muscular weakness, incoordination, skin rashes, excessive sweating of hands and feet, cold hands, and peeling of the skin.

Aggravation of Pre-existing Conditions:

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

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Water spray, dry chemical, alcohol foam, or carbon dioxide. Do not use high pressure water stream.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

7. Handling and Storage

Store in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect container from physical damage. Isolate from oxidizing materials. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred

because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Fine white crystals or crystalline.

Odor:

Neutral odor / odorless.

Solubility: Slightly soluble in water (0.1 - 1%).

Specific Gravity: 1.24 @ 30C (86F).

pH: No information found.

% Volatiles by volume @ 21C (70F): 0

Boiling Point: No information found.

Melting Point: > 300C (> 572F)

Vapor Density (Air=1): 5.31

Vapor Pressure (mm Hg): No information found.

Evaporation Rate (BuAc=1): No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides.

Hazardous Polymerization:

Will not occur. Oxidizing agents may initiate non-hazardous polymerization.

Incompatibilities:

Strong bases, strong acids, and oxidizing agents.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles

11. Toxicological Information

N, N'-Methylenebisacrylamide: Oral rat LD50: 390 mg/kg; investigated as a mutagen, reproductive effector.

-----\Cancer Lists\-----

---NTP Carcinogen---

| Ingredient | Known | Anticipated | IARC Category |
|---|-------|-------------|---------------|
| N,N'-Methylenebisacrylamide (110-26-9) | No | No | None |

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

| Ingredient | TSCA | EC | Japan | Australia |
|--|------|-----|-------|-----------|
| N,N'-Methylenebisacrylamide (110-26-9) | Yes | Yes | Yes | Yes |

-----\Chemical Inventory Status - Part 2\-----

--Canada--

| Ingredient | Korea | DSL | NDSL | Phil. |
|--|-------|-----|------|-------|
| N,N'-Methylenebisacrylamide (110-26-9) | No | Yes | No | Yes |

-----\Federal, State & International Regulations - Part 1\-----

-SARA 302- -----SARA 313-----

| Ingredient | RQ | TPQ | List | Chemical Catg. |
|------------|----|-----|------|----------------|
|------------|----|-----|------|----------------|

| | | | |
|---|--------|--------|------|
| -----\Federal, State & International Regulations - Part 2\----- | | | |
| -RCRA- -TSCA | | | |
| Ingredient | CERCLA | 261.33 | 8(d) |
| -----\Federal, State & International Regulations - Part 2\----- | | | |
| N,N'-Methylenebisacrylamide (110-26-9) No | No | No | |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: No (Pure / Solid)

Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 1 Reactivity: 0

Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED. MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY AFFECT CENTRAL NERVOUS SYSTEM.

Label Precautions:

Avoid breathing dust.

Avoid contact with eyes, skin and clothing.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person. In all cases call a physician.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 3.

Status: Accepted

Reviewed By: Brady Chung

Review Date: 7/23/2009

DISCLAIMER:

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