

Product Name: **1,3-BAC**

Preparation date: 4/26/05

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS REVISION #: 014

PRODUCT NAME: 1,3-BAC

SYNONYMS: 1,3-bis (aminomethyl) cyclohexane; 1,3-cyclohexanedimethanamine

DISTRIBUTED BY: Mitsubishi Gas Chemical America, Inc.
655 Third Avenue, 24th Floor
New York, NY 10017

PHONE NUMBERS: Inquiries - (212) 687-9030 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Component</u> | <u>%</u> | <u>CAS No.</u> | <u>Exposure Limits</u> |
|------------------------------|----------|----------------|------------------------|
| 1,3-cyclohexanedimethanamine | 100 | 2579-20-6 | Not established |

SECTION 3 - HAZARDS IDENTIFICATION

***** **EMERGENCY OVERVIEW** *****

Material is a colorless, corrosive liquid with an ammonia odor. Causes skin and eye burns. Vapors, especially upon heating, may cause severe irritation. Toxic to fish.

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wear protective goggles and gloves and impervious clothing when handling this product. Wash thoroughly after handling.

POTENTIAL HEALTH EFFECTS

EYES:

Vapor, especially when heated, can cause irritation. Symptoms include tearing, redness, and blurred vision. Liquid will cause severe irritation and permanent eye damage.

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SECTION 3 - HAZARDS IDENTIFICATION (continued)

SKIN:

Corrosive! Causes tissue damage unless **immediately** washed off. Once irritation is noticed, tissue damage has started.

INGESTION (swallowing):

Results in severe damage to mucous membranes.

INHALATION (breathing):

Vapor, especially upon heating, may cause irritation of the respiratory tract.

CHRONIC EFFECTS/CARCINOGENICITY:

This product (or component) is not listed in IARC Monographs, the NTP Eleventh Annual Report or the ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 4 - FIRST AID MEASURES

EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get medical attention immediately. If physician is not immediately available, continue flushing with water. Do **not** use chemical antidote.

SKIN CONTACT:

Immediately wash exposed area with soap and water for at least 15 minutes, then flush with water. If reddening persists, or if open sores or blisters develop, see a physician. Remove contaminated clothing and launder before re-use, using hot water and heavy-duty detergent.

INGESTION (swallowing):

If conscious, immediately give two large glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

INHALATION (breathing):

If affected, move to fresh air. If a burning sensation develops in throat or chest, or shortness of breath occurs, get immediate medical attention.

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SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: 235° F (113° C)

FLASH POINT METHOD: COC

UPPER EXPLOSION LIMIT:

Unavailable

LOWER EXPLOSION LIMIT:

Unavailable

AUTOIGNITION TEMPERATURE:

635° F (335° C)

EXTINGUISHING MEDIA:

Dry chemical, water fog, and regular foam

FIRE AND EXPLOSION HAZARDS:

None known

FIRE-FIGHTING EQUIPMENT:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Water or foam may cause frothing which can be violent, especially if sprayed into containers of hot, burning liquid. Combustion/decomposition products may include amines and other nitrogen compounds as well as carbon monoxide and carbon dioxide.

This product is toxic to fish. Keep run-off from entering sewers, rivers, streams, lakes and other bodies of water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

ACTIONS TO TAKE IN CASE OF SPILL:

Persons not wearing protective equipment should be excluded from the area of the spill until clean up has been completed. Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

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SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wash thoroughly after handling, and before eating, chewing gum, smoking or using the toilet.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation. Do not store near heat or open flames.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

These precautions are suggested for conditions where a potential for overexposure exists. Emergency conditions may require additional precautions.

RESPIRATORY PROTECTION:

A NIOSH/MSHA approved respirator with organic vapor cartridge is recommended, especially if product is heated or where there is insufficient ventilation.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or BUNA-N.

EYE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations and full face-shield are advised.

OTHER PROTECTION:

Impervious clothing and boots are recommended. Do not wear leather shoes or boots when handling this product. Leather shoes and boots can not be decontaminated. Discard contaminated leather shoes and boots. Product can be absorbed into leather, seep through the leather, and cause burns to the feet.

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below level of overexposure.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|----------------------------------|
| APPEARANCE: | Colorless liquid @ 77° F (25° C) |
| ODOR: | Ammonia-like |
| SPECIFIC GRAVITY: | 0.94 @68° F (20° C) |
| VAPOR PRESSURE (mm Hg): | 14 @ 248° F (120° C) |
| VAPOR DENSITY: (Air = 1) | Heavier than air |
| INITIAL BOILING POINT: | 428° F (220° C) @ 760 mm Hg |
| SOLIDIFICATION POINT: | Less than -94° F (-70° C) |
| EVAPORATION RATE: (Ethyl ether = 1) | <1 |
| SOLUBILITY IN WATER: | Soluble |
| VOLATILE %: | <1% |
| pH: | 13 |
| pH METHOD: | 50% in distilled water |

SECTION 10 - STABILITY AND REACTIVITY

STABILITY (conditions to avoid):
Stable under normal conditions.

INCOMPATIBILITIES (materials to avoid):
Avoid contact with strong oxidizing agents and strong mineral acids.

DECOMPOSITION:
Not available

HAZARDOUS POLYMERIZATION:
Not known to occur

SECTION 11 - TOXICOLOGICAL INFORMATION

DOT Skin Corrosive Study: Corrosive in all rabbits at 3 minutes exposure.
Buehler Skin Sensitization (guinea pigs): No evidence of sensitization when tested at 5%.

Section 11 continued on next page

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SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

Magnusson & Kligman guinea pig maximization study: No evidence of sensitization (intradermal induction - 0.05%; topical induction - 5%; challenge - 2% & 1%).
Acute dermal toxicity (rabbit): LD₅₀ - 1700 mg/kg
Acute oral toxicity (rat): LD₅₀ - 700 mg/kg (male); 780 mg/kg (female)
Acute oral toxicity (mouse) – 10% in physiological saline: LD₅₀ – 12.24 ml/kg
Acute oral toxicity (mouse): LD₅₀ – 9.2 ml/kg (male; 8.2 ml/kg (female)
Acute toxicity, bacteria (*p. putida*): EC₁₀ - 90 mg/L
Acute toxicity, Golden Orfe: LC₅₀ - 130 mg/L
Mutagenicity (Ames test): no evidence of mutagenicity

SECTION 12 - ECOLOGICAL INFORMATION

Biodegradability: not readily biodegradable - 29% degradation in a CO₂ ready biodegradation test (OECD 301B). Amines, in general, are considered toxic to fish and other aquatic organisms.

Classification according to the Wassergefahrdungsklassen: weakly polluting.

SECTION 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended disposal method for all chemical wastes. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, may be considered a corrosive waste (D002) under current RCRA regulations due to the pH of the material.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Description: Amines, liquid, corrosive, N.O.S. (1,3 bis aminomethyl cyclohexane), 8, UN 2735, PG I

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SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements.

CEPA:

This product is listed on the Canadian Domestic Substances List (DSL).

SARA 313 INFORMATION:

SARA requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372. This information must be included in all MSDS that are copied and distributed for this material.

Components present in this product at a level that could require reporting under the statute are: None

SECTION 16 - OTHER INFORMATION

HAZARD RATING:

| | | |
|------------|---|--------------|
| HEALTH | 3 | 0 - LEAST |
| FIRE | 1 | 1 - SLIGHT |
| REACTIVITY | 0 | 2 - MODERATE |
| OTHER | - | 3 - HIGH |
| | | 4 - EXTREME |

HAZARD RATING METHOD: HMIS

REASON FOR REVISION:

Changed company address and phone number

The product information contained herein is believed to be accurate as of the date of the Material Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

****END OF REPORT****