MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: METHYL BROMIDE

TRADE NAMES/SYNONYMS:
MTG MSDS 59; BROMOMETHANE; MBX; METHYL BROMIDE, LIQUID; METHOGAS; ROTOX; BROMOGAS; CELFUME; DOW FUME; DOWFUME MC-2; METAFUME; EMBAFUME; ISCOBROME; PESTMASTER; PROFUME; ZYTOX; HALON 1001; MONOBROMOMETHANE; RCRA U029; UN 1062; Ch3Br; MAT14300; RTECS PA4900000

CHEMICAL FAMILY: halogenated, aliphatic

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: METHYL BROMIDE
CAS NUMBER: 74-83-9
PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: volatile liquid, gas
ODOR: sweet odor
MAJOR HEALTH HAZARDS: harmful if inhaled or swallowed, skin irritation, central nervous system depression
PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat.

POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TERM EXPOSURE: nausea, vomiting, stomach pain, chest pain, difficulty breathing, headache, symptoms of drunkenness, hyperactivity or drowsiness, tingling sensation, visual disturbances, bluish skin color, paralysis, convulsions, coma
LONG TERM EXPOSURE: fainting, blurred vision, nerve damage, brain damage
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe), itching
LONG TERM EXPOSURE: burns, blisters
EYE CONTACT:
SHORT TERM EXPOSURE: irritation, eye damage
LONG TERM EXPOSURE: same as effects reported in short term exposure
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: no information on significant adverse effects

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention. Induce vomiting only at the instructions of a physician. Do not give anything by mouth to unconscious or convulsive person.

NOTE TO PHYSICIAN: For ingestion, consider gastric lavage.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard. Containers may rupture or explode if exposed to heat.

EXTINGUISHING MEDIA: regular dry chemical, regular foam, water

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Fight large fires from a protected location or safe distance. Stay away from the ends of tanks. Dike for later disposal. Do not scatter

spilled material with high-pressure water streams. Do not attempt to extinguish fire unless flow of material can be stopped first. Use extinguishing agents appropriate for surrounding fire. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

LOWER FLAMMABLE LIMIT: 10%
UPPER FLAMMABLE LIMIT: 16%
AUTOIGNITION: 999 F (537 C)

6. ACCIDENTAL RELEASE MEASURES

WATER RELEASE:
Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Small dry spills: Move containers away from spill to a safe area. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B). Protect from physical damage. Store in a cool, dry place. Store outside or in a detached building. Store in a well-ventilated area. Keep in the dark. Avoid exposure to low temperatures or freezing. Keep separated from incompatible substances.

HANDLING: Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
METHYL BROMIDE:
20 ppm (80 mg/m3) OSHA ceiling (skin)
5 ppm (19 mg/m3) OSHA TWA (skin) (vacated by 58 FR 35338, June 30, 1993)

1 ppm ACGIH TWA (skin)
NIOSH TWA (lowest feasible concentration)

VENTILATION: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Protective clothing is not required.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
At any detectable concentration -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
APPEARANCE: clear
COLOR: colorless
PHYSICAL FORM: volatile liquid, gas
ODOR: sweet odor
TASTE: burning taste
MOLECULAR WEIGHT: 95
MOLECULAR FORMULA: C-H3-Br
BOILING POINT: 39 F (4 C)
FREEZING POINT: -135 F (-93 C)
VAPOR PRESSURE: 1250 mmHg @ 20 C
VAPOR DENSITY (air=1): 3.3

SPECIFIC GRAVITY (water=1): 1.7 @ 0 C
WATER SOLUBILITY: 1.75% @ 20 C
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
Soluble: alcohol, chloroform, ether, benzene, carbon disulfide, carbon tetrachloride

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: metals, combustible materials, oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of carbon, acid halides, halides

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

METHYL BROMIDE:
TOXICITY DATA: 302 ppm/8 hour(s) inhalation-rat LC50; 214 mg/kg oral-rat LD50
CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Limited Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen
LOCAL EFFECTS:
Irritant: skin
ACUTE TOXICITY LEVEL:
Toxic: inhalation, ingestion
TARGET ORGANS: central nervous system
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 700 ug/L 96 hour(s) LC50 (Mortality) Medaka, high-eyes (Oryzias latipes)

INVERTEBRATE TOXICITY: 1700 ug/L 48 hour(s) EC50 (Behavior) Water flea (Daphnia magna)

ALGAL TOXICITY: 3200 ug/L 48 hour(s) EC50 (Growth) Green algae (Scenedesmus quadricauda)

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U029.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Methyl bromide
ID NUMBER: UN1062
HAZARD CLASS OR DIVISION: 2.3
LABELING REQUIREMENTS: 2.3
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: Forbidden
ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone C

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Methyl bromide
UN NUMBER: UN1062
CLASS: 2.3

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
METHYL BROMIDE: 1000 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):
METHYL BROMIDE: 1000 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):

METHYL BROMIDE: 1000 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: No
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65):
METHYL BROMIDE

OSHA PROCESS SAFETY (29 CFR 1910.119):
METHYL BROMIDE: 2500 LBS TQ

STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
METHYL BROMIDE
Developmental toxicity (Jan 01, 1993)

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: AD1

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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