1. IDENTIFICATION OF THE SUBSTANCE & THE COMPANY

CHEMICAL NAME: Methyl bromide
SYNONYM(S): Bromomethane, MBr
CHEMICAL FAMILY: Halogenated alkane
MOLECULAR WEIGHT: 94.94
TYPE OF PRODUCT AND USE: A broad-spectrum pesticide widely used as a powerful fumigant.

COMPANY
Intech Pharma (P) Ltd Ltd.
33/1A,Dhargal Industrial Estate,
Dhargal, Pernem, Goa-403513
Tel +91-832-2240819

Emergency telephone number: +91-832-2240819

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS</th>
<th>Weight %</th>
<th>Annex No</th>
<th>. EEC No</th>
<th>. EU Classification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHYL BROMIDE</td>
<td>74-83-9</td>
<td>98</td>
<td># 602-002-00-2</td>
<td>200-813-2</td>
<td>Muta. Cat.3; R68 N; R50 N; R59 T; R23/25 Xi; R36/37/38 Xn; R48/20</td>
<td>-</td>
</tr>
<tr>
<td>TRICHLORONITRO METHANE ( CHLOROPICRIN )</td>
<td>76-06-2</td>
<td>2</td>
<td># 610-001-00-3</td>
<td>200-930-9</td>
<td>T+; R26 Xi; R36/37/38 Xn; R22</td>
<td>-</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

ADVERSE HUMAN HEALTH EFFECTS
Methyl bromide may be fatal if inhaled and harmful if swallowed or absorbed through the skin. It is a neurotoxin and a severe irritant to the upper and lower respiratory tract, skin and eyes. This product contains 2% chloropicrin (trichloronitromethane), which is used as a lachrymatory warning agent, and at this level does not affect the properties of the product, except for its odour.

EYE CONTACT
Severe irritation, cause lacrimation

SKIN CONTACT
may cause skin burns rashes and skin itching
Product Name Methyl Bromide 98%
Product Name: INDBROM-98% (Methyl Bromide-98% + 2% Chloropikrin)

INHALATION
Extremely toxic, headache, fatigue, nausea, dizziness, tremors, restlessness.

INGESTION
Ingestion causes burns and boils in mouth and throat

NFPA Ratings (Scale 0-4)
Health = 3, Fire = 1, Reactivity = 0.

0 = No Hazard
1 = Slightly Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

4. FIRST-AID MEASURES

A 24-HOUR MEDICAL SURVEILLANCE PERIOD IS MANDATORY IN ALL CASES OF EXPOSURE TO METHYL BROMIDE, EVEN IN THE ABSENCE OF ANY IMMEDIATE SIGNS OF POISONING.

EYE CONTACT
Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

SKIN CONTACT
Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Get medical attention immediately. All leather items should be discarded. Other contaminated clothing must either be discarded or thoroughly ventilated and washed before re-use.

INHALATION
In case of inhalation, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

INGESTION
If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink.

NOTES TO THE PHYSICIAN
Intense vesicant.
Signs and symptoms of toxicity are primarily referable to the CNS, respiratory tract and the cardiovascular system. **NO SPECIFIC ANTIDOTE.**
5. FIRE - FIGHTING MEASURES

FLASH POINT None

FLAMMABLE/EXPLOSION LIMITS
- Lower Explosion Limit (% vol) 10
- Upper Explosion Limit (% vol) 16

AUTO-IGNITION TEMPERATURE 537°C

SUITABLE EXTINGUISHING MEDIA Carbon dioxide, dry chemicals, foam, water spray (fog).

FIRE FIGHTING PROCEDURE Wear self-contained breathing apparatus in positive pressure mode and appropriate protective clothing. If possible stop material flow immediately. Do not extinguish burning gas unless flow can be shut off immediately. Use water spray, fog nozzle or CO2 to keep cylinder cool. If there is no risk, move cylinder away from fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS Although it is considered practically nonflammable, methyl bromide can be ignited with a high energy source of ignition. Containers may rupture violently if exposed to fire or excessive heat for sufficient time. In confined spaces such as buildings or sewers, there is a danger of vapour accumulation, which may result in explosion in the presence of an ignition source. When heated to decomposition, may release poisonous and corrosive fumes of CO and HBr.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS Evacuate area and keep personnel upwind.
Wear self-contained breathing apparatus in positive pressure mode.

METHODS FOR CLEANING UP If practicable, stop flow of vapour. Ventilate and/or allow to evaporate, keeping people away from the area until safe re-entry levels are shown by halide detector.

7. HANDLING AND STORAGE
INTECH PHARMA (P) LTD
MATERIAL SAFETY DATA SHEET

Product Name: Methyl Bromide 98%
Product Name: INDBROM-98% (Methyl Bromide-98% + 2% Chloropikrin)

HANDLING
Avoid bodily contact. Use an appropriate monitoring instrument for methyl bromide in any area where it is being stored or handled. Move and transport containers with requisite care. Do not use hooks, rope sling, etc. to unload. Use hand or fork trucks to firmly cradle cylinders.
Do not bump or drag them.

STORAGE
Store cylinders and cans upright, in a secure manner, either outdoors under ambient conditions, or indoors in a well ventilated area, away from seeds, foods/feed-stuffs and human and animal habitation.
Post as a pesticide storage area. Test periodically for leaks by halide leak detector.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
EXPOSURE LIMITS:

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH-TLV Data</th>
<th>OSHA (PEL) Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHYL BROMIDE</td>
<td>1 ppm skin, A4</td>
<td>C 20 ppm (C 80 mg/m³), skin</td>
</tr>
<tr>
<td>74-83-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRICHLORONITRO METHANE</td>
<td>0.1 ppm, skin, A4</td>
<td>0.1 ppm (0.67 mg/m³)</td>
</tr>
<tr>
<td>76-06-2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VENTILATION REQUIREMENTS
Ventilation must be sufficient to maintain atmospheric concentration below exposure limit. Mechanical ventilation is recommended. Use local exhaust at source of vapour.

PERSONAL PROTECTIVE EQUIPMENT:
- RESPIRATORY PROTECTION
For escape -
Gas mask with a new organic vapour canister. For any detectable concentration -
Self-contained breathing apparatus or supplied-air respirator with a full face-piece.

- HAND PROTECTION
DO NOT WEAR GLOVES when working with MBr because of the danger that liquid or concentrated vapour may be trapped inside them.

- EYE PROTECTION
Splash-proof safety glasses CONTACT LENSES SHOULD NOT BE WORN WHEN WORKING WITH THIS CHEMICAL.
Product Name: Methyl Bromide 98%
Product Name: INDBROM-98% (Methyl Bromide-98% + 2% Chloropikrin)

- SKIN AND BODY PROTECTION
  No specially designed protective clothing is available. Do not wear impervious boots, finger rings or adhesive bandages on hands when handling this material.

HYGIENE MEASURES
  When using this material, do not eat, drink or smoke. Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
  Colourless gas, with a sharp, penetrating odour. Clear, colourless to strawcoloured liquid under pressure or below 3.5°C.

SPECIFIC GRAVITY
  1.730

MELTING POINT/RANGE
  -94°C

BOILING POINT/RANGE
  3.5-4°C

VAPOUR PRESSURE
  1420 mmHg (20°C)

VAPOUR DENSITY
  3.3 (20°C) (Air = 1)

SOLUBILITY:

SOLUBILITY IN WATER
  0.132 gr/100ml at 25°C (partial pressure CH3Br - 73 torr) 0.138 gr/100ml at 25°C (partial pressure CH3Br - 108 torr)

- SOLUBILITY IN OTHER SOLVENTS
  Infinitely soluble in most organic solvents

DECOMPOSITION TEMPERATURE
  400°C

PARTITION COEFFICIENT (N-OCTANOL/WATER)
  Log Kow - ~1.92

10. STABILITY AND REACTIVITY

STABILITY
  Stable in sealed containers and under normal conditions

MATERIALS TO AVOID
  Strong oxidizers, aluminum, tin, zinc and magnesium metals and their alloys, natural rubber and certain types of plastics

CONDITIONS TO AVOID
  Keep away from ignition sources Avoid contamination by water

HAZARDOUS DECOMPOSITION PRODUCTS:
  CO, HBr, Carbonyl Bromide

HAZARDOUS POLYMERIZATION
  Will not occur

11. TOXICOLOGICAL INFORMATION
Product Name: Methyl Bromide 98%

Product Name: INDBROM-98% (Methyl Bromide-98% + 2% Chloropikrin)

ACUTE TOXICITY:
- Rat oral LD50 liquid MBr in corn oil - 104 mg/kg microencapsulated MBr in corn oil - 133 mg/kg
- RAT INHALATION LC50 1175 mg/m³/8 hour
- MOUSE INHALATION LC50 1540 mg/m³/2 hour

EFFECTS OF OVEREXPOSURE:

- **Ocular** Severe irritant
  Contact with liquid or high concentrations of gas with the eyes may cause severe but usually reversible injury involving temporary blindness.

- **DERMAL**
  Liquid splashed on clothing or leather or high gas concentrations held in contact with skin may cause skin burns with large blisters appearing after several hours. Less severe exposures may cause itching skin rash even after several days. May be absorbed through the skin in sufficient amount to cause systemic toxicity.

- **INHALATION**
  Acute poisoning from methyl bromide is characterized by marked irritation to the respiratory tract which may lead, in severe cases, to pulmonary edema. High concentrations may damage the liver, kidneys and central nervous system. Symptoms of poisoning include headache, dizziness, somnolence, vertigo, blurred vision, slurred speech, nausea and vomiting and possibly convulsions and coma.

ONSET OF TOXIC SYMPTOMS MAY BE DELAYED FROM 30 MINUTES TO SEVERAL DAYS.

- **INGESTION**
  Severe irritant to mucous membranes and toxic poison if ingested, although ingestion is highly unlikely.

CHRONIC TOXICITY
Chronic exposure to low concentrations of methyl bromide may produce central nervous system effects. Signs include mental confusion, lethargy, inability to focus one’s eye, incoordination and muscle weakness. Repeated skin contact may cause dermatitis.

MUTAGENICITY
Mutagenic by the Ames Test
MBr induced DNA damage in rat testis following inhalation exposure at 250 ppm (6 hours/day for 5 consecutive days).
In vivo, MBr induced sister chromatid exchanges in bone marrow cells and micronuclei in peripheral erythrocytes of female mice exposed by inhalation for 14 days.

CARCINOGENICITY
Studies conducted with MBr, exposing animals both by inhalation (rats & mice) and by oral route (fumigated feed, rats), showed that THERE WAS NO EVIDENCE OF CARCINOGENIC ACTIVITY.
Not included in NTP 11th Report on Carcinogens.

OTHER
Single exposure vapour inhalation neurotoxicity study in rats:
---NOEL - 100 ppm
Acute oral toxicity (single dose) study in Beagle dogs:
---Lethal dose - 500 mg/kg
---No clinical signs were observed at 1 mg/kg
Product Name: Methyl Bromide 98%
Product Name: INDBROM-98% (Methyl Bromide-98% + 2% Chloropikrin)

12. ECOLOGICAL INFORMATION

INFORMATION ON ECOLOGICAL EFFECTS

Methyl bromide is listed in the Montreal Protocol as a controlled substance with an ODP (Ozone Depleting Potential) of 0.6.

AQUATIC TOXICITY:
- 96 Hour-LC50, Fish 3.9 mg/l (Rainbow Trout) 56.28 mg/l (Zebrafish)
- 48 Hour-EC50, Daphnia magna 2.6 mg/l
- 72 Hour-EC50, Freshwater algae 5 mg/l (Selenastrum capricornutum)

AVIAN TOXICITY:
- Oral LD50 ca. 73 mg/kg (Northern Bobwhite)

PERSISTENCE AND DEGRADABILITY
- Hydrolysis Under laboratory conditions (MBr)
  Half-life at pH 5 - 256.7 hours
  Half-life at pH 7 - 253.9 hours
  Half-life at pH 9 - 357.3 hours

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL
Observe all federal, state and local environmental regulations when disposing of this material. The recommended method is incineration. If a suitable designated combustion chamber is not available, return MARKED containers to supplier. Contact local and/or state environmental authorities to insure proper compliance.

14. TRANSPORTATION INFORMATION

UN No. 1062
IMO Proper shipping name: Methyl bromide
Class: 2.3 Toxic Gases
Label: TOXIC GAS (2)

ADR/RID
Proper shipping name: Methyl bromide
Class 2 : Gases
Classification Code: 2T
Label No.: 2.3+13(RID)
Hazard identification No. 26

ICAO/IATA
Proper shipping name: Methyl bromide
Class: 2.3
Cargo aircraft - Forbidden
Passenger aircraft - Forbidden

DOT
Proper shipping name: Methyl bromide
Hazard Class 2.3: Poisonous gas
Label: POISON GAS (2.3)
Shipping description: Inhalation Hazard; Hazard Zone C
Emergency Guide No.123
15. REGULATORY INFORMATION

EU Regulated under EC Directive no.2037/2000 on substances that deplete the ozone layer.

EEC No. 200-813-2

- **Indication of danger** Very Toxic, symbol required (T+)
  Dangerous for the environment, symbol required (N) Mutagenic Cat. 3

- **R Phrases**
  R 25: Toxic if swallowed.
  R 26: Very toxic by inhalation.
  R 36/37/38: Irritating to eyes, respiratory system and skin.
  R 48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.
  R 50 : Very toxic to aquatic organisms.
  R59 : Dangerous to the ozone layer
  R 68: Possible risk of irreversible effects

- **S Phrases**
  S 1/2 : Keep locked up and out of reach of children.
  S 13 : Keep away from food, drink and animal feeding stuffs.
  S 15 : Keep away from heat.
  S 20/21: When using, do not eat, drink or smoke.
  S 23 : Do not breathe gas/fumes/vapour/spray
  S 27 : Take off immediately all contaminated clothing.
  S 36/39 : Wear suitable protective clothing and eye/face protection.
  S 38: In case of insufficient ventilation, wear suitable respiratory equipment.
  S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
  S 59 : Refer to manufacturer/supplier for information on recovery/recycling.
  S61: Avoid release to the environment.

**For Italy**
- Toxic.
  Dangerous for the environment, symbol required (N)
  Mutagenic Cat. 3
  R23/25 - Toxic by inhalation and if swallowed
  R36/37/38 - Irritating to eyes, respiratory system and skin
  R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation
  R50 - Very toxic to aquatic organisms
  R59 - Dangerous to the ozone layer
  R68 - Possible risk of irreversible effects
  S1/2 - Keep locked up and out of reach of children
  S13 - Keep away from food, drink and animal feeding stuffs
  S15 - Keep away from heat
  S20/21 - When using, do not eat, drink or smoke
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Product Name Methyl Bromide 98%
Product Name: INDBROM-98% (Methyl Bromide-98% + 2% Chloropikrin)

(show label where possible)
S59 - Refer to manufacturer/supplier for information on recovery/recycling
S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets

Australia
Listed in AICS

USA
Reported in the EPA TSCA Inventory This product is subject to registration under FIFRA

Canada
This substance is listed under Part 1, Group 1 Substances in the National Pollutant Release Inventory (NPRI) for 2005. Information about this substance must be reported to the Minister of the Environment in accordance with subsection 46(1) of the Canadian Environmental Protection Act, 1999. This chemical is included on the current phase-out schedule of ozone-depleting substances under the Canadian Environmental Protection Act, 1999.

Japan
Listed in MITI (ENCS No.2-39, 2-199)

China inventory
Listed

Hong Kong
Dangerous Goods - Category 2 - Compressed Gases
Ozone Depleting Substances - Part 6 scheduled substance

Korea
Listed in ECL (KE-03676, KE-34085)
Toxic chemical No.97-1-113, 1% or more in mixtures (MBr)
Toxic chemical No.97-1-283, 1% or more in mixtures (CP)
Prohibited Chemicals 99-4-30, 1% or more in mixtures (CP)

Switzerland
Listed in Giftliste 1 (G-2062, G-1417)

Philippines
Listed in PICCS

Taiwan
Harmful substances

16. OTHER INFORMATION

Health, Safety & Environment Policy
We endeavor to ensure that our operations and products meet the needs of the present global community without compromising in quality of product. We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources, We ensure healthy and safe work environment for employees and whilst maintaining high production standards of operation

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE, ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

END OF SAFETY DATA SHEET