MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

ISSUE DATE : 01-17-04

PRODUCT NAME : OXSOL®1000

Manufacturer’s Name and Address : MANA
171 Madison Avenue
New York, NY 10016
(212) 896-4935

24 HOUR EMERGENCY TELEPHONE : 1-800-535-5053
TO REQUEST AN MSDS : 1-800-699-8606
CUSTOMER SERVICE : (212) 896-4935

PRODUCT USE : Solvent

CHEMICAL NAME : Benzene, 1,2-Dichloro-4-(trifluoromethyl)-

CHEMICAL FORMULA : \( \text{C}_7\text{H}_3\text{Cl}_2\text{F}_3 \)

SYNONYMS/COMMON NAMES : 3,4-DCBTF, 3,4-dichlorobenzotrifluoride

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER / NAME
328-84-7 Benzene, 1,2-dichloro-4-(trifluoromethyl)-

EXPOSURE LIMITS PERCENTAGE
PEL: Not Established VOL ND
TLV: Not Established WT 99-100
CEL: 5.0 ppm; 43.9 mg/m³

COMMON NAMES:
3,4-DICHLOROBENZOTRIFLUORIDE

Listed On (List Legend Below):
00 19 23 36 51

LIST LEGEND
00 TSCA INVENTORY 19 PA REQUIREMENT-3% OR GREATER
23 NJ REQUIREMENT-1% OR GREATER 36 CANADIAN NDSL
51 EINECS

OXSOL® is a registered trademark of MILENIA Agro Ciencieas S.A., part of Makhteshim Agan Group.
3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

COMBUSTIBLE LIQUID. MAY CAUSE IRRITATION BY ALL ROUTES OF EXPOSURE. MAY PRODUCE SYMPTOMS OF CENTRAL NERVOUS SYSTEM DEPRESSION INCLUDING HEADACHE, DIZZINESS, NAUSEA, LOSS OF BALANCE AND DROWSINESS. PROLONGED OR REPEATED INHALATION MAY ADVERSELY EFFECT THE LIVER AND KIDNEY.

Clear colorless liquid.

**POTENTIAL HEALTH EFFECTS**

**ROUTES OF ENTRY:**
Inhalation, Eyes, Skin, Ingestion.

**TARGET ORGANS:**
Central Nervous System, Kidneys, Liver.

**IRRITANCY:**
Skin, Eyes, Respiratory Tract.

**SENSITIZING CAPABILITY:**
None known.

**REPRODUCTIVE EFFECTS:**
None known.

**CANCER INFORMATION:**
Not known to be carcinogenic.

**SHORT-TERM EXPOSURE (ACUTE)**

**INHALATION:**
May produce symptoms of central nervous system depression including headache, dizziness, nausea, loss of balance and drowsiness.

**EYES:**
May be irritating.

**SKIN:**
May be irritating.

**INGESTION:**
Ingestion may cause liver and kidney damage.

**REPEATED EXPOSURE (CHRONIC)**

Prolonged or repeated breathing or swallowing of large amounts may cause liver and kidney damage based on animal studies.

**SYNERGISTIC MATERIALS:**
None known.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:**
None known.
4. FIRST AID MEASURES

EYES:
IMMEDIATELY FLUSH EYES WITH A DIRECTED STREAM OF WATER for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN:
Wash thoroughly with soap and water. Wash clothing before reuse. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

INHALATION:
Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, have a trained person administer artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
DO NOT INDUCE VOMITING. This material is not soluble. DO NOT GIVE FLUIDS. If spontaneous vomiting is inevitable, PREVENT ASPIRATION by keeping the victims head below the knees. GET IMMEDIATE MEDICAL ATTENTION. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration.

NOTES TO PHYSICIAN:
Administration of adsorbents such as activated charcoal may be of value. Gastric lavage may be effective when performed by a physician within 4 hours of ingestion.

5. FIRE FIGHTING MEASURES

Flash Point: 170°F(76.7°C)
Method: TAG CC
Autoignition Temperature: >500°C

FLAMMABLE LIMITS IN AIR, BY % VOLUME
Upper: 7.8
Lower: 2.9

EXTINGUISHING MEDIA:
Foam, dry chemical, carbon dioxide, water fog or spray.

FIRE FIGHTING PROCEDURES:
Evacuate all unnecessary personnel. Shut down motors, pumps, electrical service and eliminate all sources of ignition. Use water spray to keep fire exposed containers cool to avoid pressure buildup. Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and full protective clothing.

FIRE AND EXPLOSION HAZARD:
Over-heated drums may rupture. Heavy vapors can travel to source of ignition and flash back. Combustible liquid may release hydrogen chloride under fire conditions. May release hydrogen fluoride under fire conditions.

SENSITIVITY TO MECHANICAL IMPACT:
Not applicable.

SENSITIVITY TO STATIC DISCHARGE:
Electrostatic charge may build up during handling. Grounding of equipment is recommended.
6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Evacuate unnecessary personnel and eliminate all sources of ignition. Follow protective measures provided under Personal Protection in Section 8.

ENVIRONMENTAL PRECAUTIONS:
Contain liquids and prevent discharges to streams or sewers, control or stop the loss of volatile materials to the atmosphere. Large leaks may require environmental consideration and possible evacuation. Do not apply water to the leak. Spills or releases should be reported, if required, to the appropriate local, state and federal agencies.

METHODS FOR CLEANING UP:
If a significant spill occurs, evacuate area. If exposure conditions warrant, wear a NIOSH/MSHA approved positive pressure self-contained breathing apparatus and full protective clothing. Shut off electrical service and protect from ignition. Contain spill or release with a dike to prevent flow into sewers or streams. Pump into container for disposal or reclamation. Soak up small spills with absorbent material.

7. HANDLING AND STORAGE

HANDLING:
Avoid breathing vapor, use with adequate ventilation. Wear NIOSH/MSHA approved respiratory protection if there is potential for exposure above the exposure limits. Do not get in eyes, on skin or clothing. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the MSDS. Wash thoroughly with soap and water after handling. Keep away from heat, sparks, pilot lights, welding operations and open flame. Do not eat, drink or smoke in areas where this material is used. Ground all equipment. Never enter a pit or tank without following safety procedures—never alone, always with a lifeline and positive pressure supplied air. Vapors are heavier than air and will tend to collect in low areas. Avoid use in confined spaces. Areas of poor ventilation could contain concentrations high enough to cause unconsciousness and death. Use approved supplied air respirator following manufacturer's recommendations where vapors may be generated. Do not reuse containers.

SPECIAL MIXING AND HANDLING INSTRUCTIONS:
Do not allow contact with materials as noted in Section 10.

STORAGE:
Keep container tightly closed and properly labeled.
Store in a cool, ventilated area away from incompatible materials (see Section 10).
Dike storage containers to contain 110% of tank volume.
Vent indoor tanks to an outside location so escaping vapors will not contaminate any work areas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:
General room ventilation plus local exhaust at points of emission to maintain levels of airborne contaminants below exposure limits.

PERSONAL PROTECTION
RESPIRATORY:
For emergencies and unknown concentrations, use NIOSH/MSHA approved positive pressure self-contained breathing apparatus. Utilize respiratory protective equipment in accordance with 29CFR 1910.134 (Respiratory Protection).

EYE/FACE:
Wear chemical safety goggles plus full face shield to protect against splashing when appropriate (ANSI Z87.1).

SKIN:
Wear chemical resistant gloves such as North Silver Shield® or Viton®. For limited use, PVC or nitrile gloves may be worn. Silver Shield is a registered trademark of Siebe North, Inc. Viton is a registered trademark of E. I. DuPont deNemours and Company, Inc. Wear plastic or rubber apron for splash protection.

OTHER:
Emergency shower and eyewash facility should be in close proximity (ANSI Z358.1).

9. PHYSICAL AND CHEMICAL PROPERTIES
Appearance and Odor: Clear colorless liquid.
Odor Threshold: No data
Specific Gravity (Water=1): 1.478
Vapor Pressure: 1.6 mm Hg @ 20°C
Vapor Density (Air=1): 7.4
Density: 12.3 lbs/gal
Evaporation Rate: Not available
% Volatiles by Wt: 100
Boiling Point: 173.5°C (344°F)
Freezing Point: -12.4°C (19.7°F)
Melting Point: -12.4°C (19.7°F)
Solubility in Water (% by wt.): 11.6 ppm @ 23°C
pH: Not available
Octanol/Water Partition Coefficient: log Kow = 3.84
Thermal Decomposition Temperature: Not available
Other: Not available
VOC (g/l. by wt.): 100% (1478 g/l)

10. STABILITY AND REACTIVITY
CHEMICAL STABILITY:
__X__ STABLE _____ UNSTABLE

REACTS WITH:
_____ AIR ___X_ OXIDIZERS _____ METALS
_____ WATER _____ ACIDS _____ OTHER
HAZARDOUS POLYMERIZATION:

_____ OCCURS  __X__ WILL NOT OCCUR

COMMENTS:
Avoid contact with oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
Chlorine containing gases can be produced.
Fluorine containing gases can be produced.

11. TOXICOLOGICAL INFORMATION

328-84-7  Benzene, 1,2-dichloro-4-(trifluoromethyl)-
ACUTE ORAL LD50 : (rat)  2900 mg/kg
ACUTE DERMAL LD50: (rabbit) >2 g/kg
ACUTE INHALATION LC50 : (rat, 4hr) >1919 ppm
PRIMARY SKIN IRRITATION: (rabbit) slight
PRIMARY EYE IRRITATION: (rabbit) slight

Results of oral, gavage, 14 and 90 day studies in laboratory rats suggest that the liver and possibly the kidney, are target organs. Adverse liver effects were observed to begin at dose levels of approximately 100 mg/kg/day.

12. ECOLOGICAL INFORMATION

328-84-7  Benzene, 1,2-dichloro-4-(trifluoromethyl)-
AQUATIC ECOTOX DATA Fish:
LC50 (96 hr.) (Rainbow trout) 11.9 mg/L
LC50 (96 hr.) (Bluegill sunfish) 12.8 mg/L
BCF – QSAR estimate based on water solubility is 2056
Invertebrates:
LC50 (96 hr.) (Water flea) 0.33 mg/L
LC50 (21 day) (Water flea) 0.16 mg/L
Amphibians: No data available
Plants: No data available

TERRESTRIAL ECOTOX DATA
Wildlife:
LD50 Oral (Rat as surrogate) 1,150 mg/Kg
Plants: No data available
ENVIRONMENTAL FATE DATA
There is limited information available on the environmental fate and effects of 1,2-dichloro-4-(trifluoromethyl)benzene [3,4-DCBTF]. Limited laboratory toxicity data indicate that 3,4-DCBTF is moderately toxic to terrestrial organisms, while it may be highly toxic aquatic species. The aquatic toxicity may be somewhat tempered by 3,4-DCBTF's low water solubility (15 mg/L). Limited data indicates that the bioaccumulation factor ranges between 280 and 2800. 3,4-DCBTF may persist in soils and sediments due to its hydrophobic nature. Its relatively high vapor pressure indicates that it will be subject to volatilization losses from both water and soil. 3,4-DCBTF is not expected to be highly reactive under atmospheric conditions, and thus may be persistent in air. Due caution should be exercised to avoid the accidental release of this material to aquatic and terrestrial environments.

13. DISPOSAL CONSIDERATIONS

Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be done by a competent and properly permitted contractor.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Less than 119 gallons or less</th>
<th>More than 119 gallons</th>
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</thead>
<tbody>
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<td>DOT proper shipping name</td>
<td>NA</td>
<td>NA 1993</td>
</tr>
<tr>
<td>DOT hazard class</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>DOT packing group</td>
<td>NA</td>
<td>II</td>
</tr>
<tr>
<td>DOT hazardous substance</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>DOT marine pollutant</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Additional description</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:
OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III Hazard Categories for this product are indicated below. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR 370. Please consult those regulations for details.

TSCA: All components of this product that are required to be on the TSCA inventory are listed on the inventory.

SARA/TITLE III HAZARD CATEGORIES:
Immediate(Acute) Health: NO  Reactive Hazard NO
Delayed(Chronic) Health: YES  Sudden Release of Pressure NO
Fire Hazard: YES

HMIS HAZARD RATINGS:
HEALTH HAZARD: _1*_  FIRE HAZARD: ___2___  REACTIVITY: ___1___

Page 7 of 10
STATE REGULATIONS:
See Section 2. COMPOSITION/INFORMATION ON INGREDIENTS list legend for applicable state regulation.

INTERNATIONAL REGULATIONS:
Consult the regulations of the importing country.

CANADA:
WHMIS Hazard Class: B3, D2B

16. OTHER INFORMATION
For additional non-emergency health, safety or environmental information telephone 800-699-8606 or write to:
  IsleChem, LLC
  2801 Long Road
  Grand Island, NY 14072

MSDS LEGEND:
ACGIH = American Conference of Governmental Industrial Hygienists
CAS = Chemical Abstracts Service Registry Number
CEILING = Ceiling Limit (15 Minutes)
CEL = Corporate Exposure Limit
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit (OSHA)
STEL = Short Term Exposure Limit (15 Minutes)
TDG = Transportation of Dangerous Goods (Canada)
TLV = Threshold Limit Value (ACGIH)
TWA = Time Weighted Average (8 Hours)
WHMIS = Worker Hazardous Materials Information System (Canada)

* = See Section 3 Hazards Identification - Repeated Exposure (Chronic) Information

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling and storage. Other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any federal, state or local laws, rules, regulations or ordinances.

17. WARNING LABEL INFORMATION

SIGNAL WORD: WARNING

HAZARD WARNINGS:
COMBUSTIBLE LIQUID

MAY CAUSE IRRITATION BY ALL ROUTES OF EXPOSURE.

MAY PRODUCE SYMPTOMS OF CENTRAL NERVOUS SYSTEM DPER ESSION INCLUDING HEADACHE, DIZZINESS, NAUSEA, LOSS OF BALANCE AND DROWSINESS.

PROLONGED OR REPEATED INHALATION MAY ADVERSELEY EFFECT THE LIVER AND KIDNEY.

PRECAUTIONS:

Keep away from heat, sparks and open flame.

Avoid breathing dust, vapors or mist.

Avoid contact with eyes, skin and clothing.

Use with adequate ventilation and wear respiratory protection when exposure to dust, mist or spray is possible.

Do not swallow.

Do not eat, drink or smoke in areas where this material is used.

Wash thoroughly with soap and water after handling.

Do not reuse container. Product residues may remain. All labeled precautions MUST be observed.

Ground all equipment before use.

Do not apply air pressure, puncture or weld on or near containers.

Never enter a pit or tank without following safety procedures - never alone, always with a lifeline, and always with a positive pressure supply of fresh air. Avoid use in confined spaces.

Before using, read Material Safety Data Sheet (MSDS) for this material.

FIRST AID

EYES:

IMMEDIATELY FLUSH EYES WITH A DIRECTED STREAM OF WATER for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN:

Wash thoroughly with soap and water. Wash clothing before reuse. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

INHALATION:

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, have a trained person administer artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

DO NOT INDUCE VOMITING. This material is not soluble. DO NOT GIVE FLUIDS. If spontaneous vomiting is inevitable, PREVENT ASPIRATION by keeping the victim's head below the knees. GET IMMEDIATE MEDICAL ATTENTION. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration.

IN CASE OF SPILL OR LEAK:
Evacuate unnecessary personnel and eliminate all sources of ignition. Wear full protection equipment and clothing.

Contain spill and pump into marked container for reclamation or disposal.

**FIRE:**

Use dry chemical, alcohol foam, carbon dioxide or water. Do not inhale gases. Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus.

**HANDLING AND STORAGE:**

Wear chemical safety goggles plus full face shield to protect against splashing when appropriate (ANSI Z87.1).

Wear chemical resistant gloves such as North Silver Shield® or Viton®. For limited use, PVC or nitrile gloves may be worn. Silver Shield is a registered trademark of Siebe North, Inc. Viton is a registered trademark of E. I. DuPont de Nemours and Company, Inc. Store in a cool, dry, well ventilated area away from incompatible materials.

Keep container tightly closed and properly labeled.

Dike storage tanks separately to contain 110% of tank volume.

**DISPOSAL:**

Always package, store, transport and dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations.

**INFORMATION REQUIRED BY FEDERAL, STATE OR LOCAL REGULATIONS:**

This Product Contains:

<table>
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<th>CAS#</th>
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<tr>
<td>328-84-7</td>
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</table>

**HMIS RATING:** HEALTH _1*_ FLAMMABILITY __2__ REACTIVITY __1__

For Industrial Use Only

Contains no photochemically reactive material in accordance with Rule 443 of the South Coast Air Quality Management District.