OXSOL®

SAFETY DATA SHEET

DATE: 5/26/15

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

(a) PRODUCT NAME IDENTIFIER USED ON LABEL:

Oxsol 100

(b) OTHER MEANS OF IDENTIFICATION:

Synonyms: PCBTF, Parachlorobenzotrifluoride, Benzene,1-Chloro-4 (Trifluoromethyl)

Chemical formula: $C_7H_4ClF_3$

CAS Numbers: See section 3

Other: None.

(c) RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS

Solvent

(d) NAME, ADDRESS AND TELEPHONE NUMBER OF MANUFACTURER

MANA
171 Madison Avenue
New York, NY 10016 **Telephone**: (212) 896-4935

(e) EMERGENCY PHONE NUMBER

24 Hour emergency telephone: 1-800-535-5053

To request an SDS: 1-800-699-8606

Customer service: (212) 896-4935

2. HAZARDS IDENTIFICATION

(a) CLASSIFICATION OF CHEMICAL IN ACCORDANCE WITH 29 CFR 1910(d)

Health: Specific Target Organ Toxicity, Single Exposure – Category 3; Specific Target Organ Toxicity, Repeated Exposure – Category 2

Physical: Flammable Liquid - Category 3

(b) SYMBOLS, SIGNAL WORD, HAZARD AND PRECAUTIONARY STATEMENTS IN ACCORDANCE WITH 29 CFR 1910.1200(d)

Symbols (Pictograms)

Signal Words, Hazard and Precautionary Statements:

Warning: Flammable liquid and vapor. May cause drowsiness or dizzines. May cause damage to organs through prolonged or repeated exposure..

Keep away from heat/sparks/open flames/hot surfaces. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion proof electrical/ ventilating/lighting. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/eye protection/face protection. Do not breathe vapor/fumes/spry. Get medical attention if you feel unwell. Use only outdoors or in a well-ventilated area.

In case of fire: use foam, carbon dioxide, water fog or spray to extinguish.

If on skin or hair: Take off immediately all contaminated clothing. Rinse skin with water/shower.

If inhaled: Remove person to fresh air and keep comfortable for breathing.

Store in a well-ventilated place. Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

(c) HAZARDS NOT OTHERWISE CLASSIFIED

None

(d) MIXTURE INGREDIENT(S) THAT ARE NOT CLASSIFIED FOR TOXICITY

None at greater than 1%.

3. COMPOSITION/INFORMATION ON INGREDIENTS

(a) Chemical Name	(b) Common Name & Synonyms	(c) CAS Number	(d) Concentration Weight %
Benzene,1-Chloro-4 (Trifluoromethyl)	Parachlorobenzotri-fluoride	98-56-6	98.5-100%

4. FIRST AID MEASURES

(a) DESCRIPTION OF FIRST AID MEASURES BY ROUTES OF ENTRY

EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Washing eyes within several seconds is essential to achieve maximum effectiveness. IF IRRITATION PERSISTS GET MEDICAL ATTENTION..

SKIN: Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Wash clothing before reuse. IF IRRITATION PERSISTS GET MEDICAL ATTENTION

INHALATION: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

(b) MOST IMPORTANT SYMPTOMS AND EFFECTS

Potential health effects:

Routes of entry: Ingestion, inhalation, skin, eyes.

Target organs: Central Nervous System, Kidneys, Liver.

Irritancy: May be irritating to eyes, skin and respiratory tract

Sensitizing capability: None known.

Reproductive effects: None known.

Cancer information: This product does not contain any substances at > 0.1 weight % that are considered by OSHA, NTP, IARC or AGCIH to be "probable" or "suspected" carcinogens.

Short term exposure (acute):

Inhalation: Irritating to mucous membranes.

Eyes: Liquid is a severe eye irritant and can cause burns.

Skin: May cause burns.

Ingestion: May cause burns to gastrointestinal tract. May be harmful by ingestion.

Repeated exposure (chronic)

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

See Inhalation and Ingestion

Synergistic materials: None known.

Medical conditions aggravated by exposure: None known.

(c) INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT

As indicated above

5. FIRE FIGHTING MEASURES

(a) SUITABLE EXTINGUISHING MEDIA

Dry chemical, alcohol foam, carbon dioxide**,** water spray.

(b) SPECIFIC HAZARDS ARISING FROM THE CHEMICAL

Does not sustain combustion but will burn under fire conditions (see section 14 (a)). Over-heated drums may rupture. Heavy vapors can travel to source of ignition and flash back.

(c) SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS

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

(note: see section 9 for flash point, LEL, UEL, and auto-ignition temperature)

6. ACCIDENTAL RELEASE MEASURES

(a) PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Evacuate all unnecessary personnel and eliminate all sources of ignition. Follow protective measures provided in section 2 and section 8.

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

(b) METHODS AND MATERIALS FOR CONTAINMENT AND 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.

Dispose of clean-up materials per section 13.

7. HANDLING AND STORAGE

(a) PRECAUTIONS FOR SAFE 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.

(b) CONDITIONS FOR SAFE STORAGE, INCOMPATIBILITIES

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.

Incompatibilities: See section 10.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

(a) EXPOSURE LIMITS

Component	*Weight Per cent*	*OSHA*	*ACGIH TLV*	*Corporate Exposure Limit (CEL)*
Benzene,1-Chloro-4 (Trifluoromethyl)	98.5-100	None established	None established	25 ppm – 8 hour TWA

(b) ENGINEERING CONTROLS

General room ventilation plus local exhaust at points of emission should be used to maintain levels of airborne contaminants as low as feasibly possible and below exposure limits.

(c) 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 safety glasses with side shields or chemical safety goggles and a face shield as 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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

(a) Appearance and Odor: Clear colorless, liquid naphthalenic odor

(b) Odor Threshold: < 1 ppm

(c) pH: NA

(d) Specific Gravity (H_2O = 1): 1.34

(e) Melting Point/Freezing Point: - 36^0 C

(f) Boiling Point @ 760 mm Hg/Boiling Point Range: 139^0 C

(g) Flash Point: 42.8^0 C

(h) Evaporation rate: (n-butyl acetate=1): 0.9

(I) Flammability: Will burn under fire conditions but will not sustain combustion (see section 14(a))

(j)Lower explosive limit (LEL)/Upper explosive limit (UEL): 0.9/10.5 % in air

(k) Vapor Pressure: 5.3 mm Hg @ 20^0 C

(l) Vapor density: Not available (air=1): 6.2

(m) Relative density: Not available

(n) Solubility in Water: 29 ppm @ 23^0 C

(o) Partition coefficient: Octanol/Water: log Kow = 3.70

(p) Auto ignition temperature: > 500^0 C

(q) Decomposition temperature: Decomposition starts at 124^0 C

(r) Viscosity: Not available

10. STABILITY AND REACTIVITY

a) REACTIVITY

Reacts with oxidizers.

b) CHEMICAL STABILITY

Stable

c) POSSIBILITY OF HAZARDOUS REACTION

Hazardous polymerization will not occur.

d) CONDITIONS TO AVOID

See 10 a, c and e

e) INCOMPATIBLE MATERIALS

See 10 a and c.

f) HAZARDOUS DECOMPOSITION PRODUCTS

Chlorine and fluorine containing gases can be produced.

11. TOXICOLOGICAL INFORMATION

a) INFORMATION ON LIKELY ROUTES OF EXPOSURE

See section 4 and 11(d).

b) SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS

See sections 2 and 4 and 11(d).

c) DELAYED AND IMMEDIATE EFFECTS

See section 4.

d) NUMERICAL MEASURES OF TOXICITY

ACUTE ORAL TOXICITY: LD50: >6.8 g/kg (rat)
ACUTE DERMAL: LD50: >2.7 g/kg (rabbit)
ACUTE INHALATION: LC50: > 4479 ppm (rat)
PRIMARY SKIN IRRITATION: non-irritating (rabbit)
PRIMARY EYE IRRITATION: non-irritating (rabbit)

A 28-day range-finding inhalation study was conducted in male and female Sprague-Dawley rats exposed to 0, 100, 250, 500, or 1000 ppm for 6 hour/day, 5 days/week. Clinical signs included increased activity at 250 ppm and above. Liver and kidney weights were increased. Microscopic changes in male kidneys stained positive for alpha-2-U globulin and the effects were considered not relevant to humans. Liver cell hypertrophy was seen at all exposures in males. Liver changes were consistent with clinical chemistry and PCBTF-blood level analysis and are believed to be an adaptive response, due to increased liver metabolism.

Gavage studies in laboratory rodents for treatment periods of 14, 28, and 90 days have demonstrated significant liver and kidney toxicity at dose levels of 400 - 1000 mg/kg/day. Evidence of target organ toxicity included significant increases in relative liver and kidney weights, clinical chemistry values and histopathological findings. Renal toxicity which occurred

only in male rats, was apparently due to "hyaline droplet" nephropathy and is therefore, highly unlikely to develop in man. The NOAEL's for all these studies range from 10 to 100 mg/kg/day.

CNS effects were observed in rats exposed to PCBTF at or above 2822 ppm for 4 hours.

A 90 day (13 week) rat inhalation toxicity and neurobehavioral study was conducted using exposures of 6 hours/day, 5 days/week at concentrations of 0, 10, 50 and 250 ppm. There were no PCBTF-related macroscopic observations. Microscopically, PCBTF-related centrilobular hypertrophy was present only in the livers of males and females at the high dose (250 ppm) after 13-weeks of exposure. No centrilobular hypertrophy was observed at any level among recovery animals. There were no PCBTF-related effects on the nervous system as measured by a functional observation battery, muscular activity measurements and neuropathology. A NOEL of 50 ppm was established in this study for liver hepatocyte hypertrophy in male and female rats. If the hepatocyte hypertrophy observed is considered to be an adaptive response to PCBTF, the NOAEL for this study is 250ppm.

e) CARCINOGENICITY

This product does not contain any substances at > 0.1 weight % that are considered by OSHA, NTP, IARC or AGCIH to be “probable” or “suspected” carcinogens.

12. ECOLOGICAL INFORMATION

a) ECOTOXICITY

AQUATIC ECOTOX DATA

Fish:

LC50 (96 hr.) (Rainbow trout) 13.5 mg/L

LC50 (96 hr.) (Bluegill sunfish) 12.0 mg/L

MATC (31 day) (Fathead minnow) >0.54 <1.4 mg/L*

*Triethylene glycol used as solvent carrier

BCF (48 hr.) (Bluegill sunfish) 121.8 & 202.0

Invertebrates:

LC50 (48 hr.) (Water flea) 12.4 mg/L

MATC (21 day) (Water flea) >0.03 < 0.05 mg/L*

*Acetone used as solvent carrier

Plants:

IC50 (72 hr.) (Green & Blue-green algae) 500 mg/L

TERRESTRIAL ECOTOX DATA

No data available

b) PERSISTANCE AND DEGRADABILITY

Biotic:

Biodegradation: inconclusive due to volatility

Abiotic:

Atmospheric lifetime: estimated to be 65.9 days for OH radical reaction

Log Kow	3.7
Koc	420 - 530
Water Sol. @ 23 C	29.1

p-Chlorobenzotrifluoride (PCBTF) will preferentially partition to the atmosphere, due to its high volatility. It has been estimated that 99.93% of a 100 Kg spill would end up in the atmosphere, while only 0.06% would partition to water (M. Garlanda, 1990). The aqueous solubility of PCBTF (29.1 mg/L) would also tend to limit its potential impact to exposed aquatic systems. PCBTF has exhibited significant toxicity to aquatic species under laboratory conditions, but is unlikely to exhibit a similar degree of acute toxicity under environmental conditions due to the aforementioned solubility and volatility issues. The moderate level of bioaccumulation measured in laboratory tests will also be subject to environmental mitigation due to PCBTF's physical/chemical properties. PCBTF should rapidly volatilize from dry and moist soils. Volatility, and relative environmental partitioning characteristics, make it unlikely that PCBTF represents a significant threat to aquatic or terrestrial environments.

c) BIOACCUMULATIVE POTENTIAL

See section 11(b)

d) MOBILITY IN SOIL

See section 11(b)

e) OTHER ADVERSE EFFECTS

NA

13. DISPOSAL CONSIDERATIONS

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

Recovered non-usable material is a RCRA Hazardous Waste. Treatment, storage, transportation and disposal must be in accordance with EPA and State regulations under the authority of the Resource Conservation and Recovery Act (RCRA) 40 CFR parts 260-271.

14. TRANSPORTATION INFORMATION

a) UN NUMBER:

Not regulated.

Oxsol 100 does not sustain combustion as determined by ASTM D 4206. It is therefore is excepted from classification as a flammable liquid (see 49 CFR 173.20(a)(3))

b) UN PROPER SHIPPING NAME:

NA

c) TRANSPORT HAZARD CLASSES

NA

d) PACKING GROUP

NA

e) ENVIRONMENTAL HAZARDS

Not a marine pollutant

e) TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL

None

f) SPECIAL PRECAUTIONS

None

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, 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 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.

SARA/TITLE III HAZARD CATEGORIES:

Immediate(Acute) Health:	YES	Reactive Hazard:	NO
Delayed (Chronic) Health:	YES	Sudden Release of Pressure:	NO
Fire Hazard:	YES		

Parachlorobenzotrifluoride was designated by the Interagency Testing Committee for action by the EPA under Section 4(e) of the Toxic Substance Control Act. As a result of data submitted under a negotiated testing program, the EPA subsequently concluded that the information provided adequately characterized the Health, Environment and Chemical fate effects of parachlorobenzotrifluoride and issued a decision not to require further testing**.**

TSCA: All components contained in this substance are listed on the TSCA inventory.

HMIS HAZARD RATINGS:

HEALTH HAZARD: 1* FIRE HAZARD: 2 REACTIVITY: 1

STATE REGULATIONS: Consult local laws for applicability.

INTERNATIONAL REGULATIONS: Consult the regulations of the importing country**.**

16. OTHER INFORMATION

SDS LEGEND:

ACGIH = American Conference of Governmental Industrial Hygienists

ANSI = American National Standards Institute

ASTM = American Society for Testing and Materials

CAS = Chemical Abstracts Service Registry Number

CEILING = Ceiling Limit (Duration is for 15 minutes, unless otherwise noted.)

CEL = Corporate Exposure Limit

CERCLA = Comprehensive Environmental Response Compensation and Liability Act

CFR = Code of Federal Regulations (USA)

DOT = Department of Transportation

LEL = Lower explosive limit

MARPOL = International Convention for the Prevention of Pollution from Ships

MSHA = Mine Safety and health Administration

NTP = National Toxicological Program

NIOSH = National Institute for Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

GHS = Global Harmonized System

IARC = International Agency for Research on Cancer

PEL = Permissible Exposure Limit (OSHA)

Ppm = parts per million

RQ = Reportable Quantity per 40 CFR 355

SARA = Superfund Amendments and Re-authorization Act

SDS = Safety Data Sheet

STEL = Short Term Exposure Limit (Duration is for 15 minutes, unless otherwise noted.)

TLV = Threshold Limit Value (ACGIH)

TWA = Time Weighted Average (8 hr)

UEL = Upper Explosive Limit

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

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MOST RECENT VERSION OF THIS SDS: 5/26/15