

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: PHOSPHORUS TRIFLUORIDE

TRADE NAMES/SYNONYMS:

MTG MSDS 148; PHOSPHORUS FLUORIDE (PF₃); TRIFLUOROPHOSPHINE; PHOSPHOROUS TRIFLUORIDE; PHOSPHORUS FLUORIDE; F₃P; MAT18785; RTECS TH3850000

CHEMICAL FAMILY: non-metallic, halides

CREATION DATE: Feb 16 1989

REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: PHOSPHORUS TRIFLUORIDE

CAS NUMBER: 7783-55-3

PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=1



EMERGENCY OVERVIEW:

COLOR: colorless

PHYSICAL FORM: gas

MAJOR HEALTH HAZARDS: respiratory tract burns, skin burns, eye burns

PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat. Contact with water or moist air may generate flammable and/or toxic gases.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: burns, kidney damage, liver damage

LONG TERM EXPOSURE: burns

SKIN CONTACT:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: burns

EYE CONTACT:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: burns

INGESTION:

SHORT TERM EXPOSURE: ingestion of a gas is unlikely

LONG TERM EXPOSURE: same as effects reported in short term exposure

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

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

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

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

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

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

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

FIRE FIGHTING: Do not get water inside container. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Keep unnecessary people away, isolate hazard area and deny entry. 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.

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Keep unnecessary people away, isolate hazard area and deny entry. Small spills: Flood with water. Large spills: Dike for later disposal. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Avoid contact with water or moisture. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

PHOSPHORUS TRIFLUORIDE:

No occupational exposure limits established.

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: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any chemical cartridge respirator with acid gas cartridge(s).

Any chemical cartridge respirator with a full facepiece and acid gas cartridge(s).

Any air-purifying respirator with a full facepiece and an acid gas canister.

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

COLOR: colorless

ODOR: Not available

MOLECULAR WEIGHT: 87.97

MOLECULAR FORMULA: P-F₃

BOILING POINT: -150 F (-101 C)

FREEZING POINT: -242 F (-152 C)

VAPOR PRESSURE: 760 mmHg @ -101 C

VAPOR DENSITY (air=1): 3.03 @ 25 C

SPECIFIC GRAVITY: Not applicable

DENSITY: 3.907 g/L

WATER SOLUBILITY: reacts

PH: Not applicable

VOLATILITY: Not applicable

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not applicable

VISCOSITY: 0.01871 cP @ 25 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

SOLVENT SOLUBILITY:

Soluble: alcohol

10. STABILITY AND REACTIVITY

REACTIVITY: Contact with water or moist air may form flammable and/or toxic gases or vapors.

CONDITIONS TO AVOID: Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.

INCOMPATIBILITIES: bases, halogens, amines, oxidizing materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products or contact with water or moisture: hydrogen fluoride, halogenated compounds, oxides of phosphorus

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

PHOSPHORUS TRIFLUORIDE:

LOCAL EFFECTS:

Corrosive: inhalation, skin, eye

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D003.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Compressed gas, toxic, corrosive, n.o.s. (PHOSPHORUS TRIFLUORIDE)

ID NUMBER: UN3304

HAZARD CLASS OR DIVISION: 2.3

LABELING REQUIREMENTS: 2.3; 8

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden

CARGO AIRCRAFT ONLY: Forbidden

ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone B



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Compressed gas, toxic, corrosive, n.o.s. (PHOSPHORUS TRIFLUORIDE)

UN NUMBER: UN3304

CLASS: 2.3; 8

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B

and C):

ACUTE: Yes

CHRONIC: Yes

FIRE: No

REACTIVE: Yes

SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

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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