1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

SUBSTANCE: Trifluoriodomethane, Carbon dioxide mixture
CHEMICAL FAMILY: Halogenated, inorganic gas mixture
FORMULA: CF₃I, CO₂
SYNONYMS: Trifluoromethyl Iodide; Iodotrifluoromethane; Monoiodotrifluoromethane; Perfluoromethyl Iodide

COMPANY IDENTIFICATION
Manufacturer/Distributor
IGX Group, Inc.
490 Post St., Suite 1700
San Francisco, CA 94102

Corporate MSDS Number: IGX001016

Phone Numbers
Product Information: 1-415-856-0570
Transport Emergency: CHEMTREC 1-800-424-9300
(Outside U.S. 703-527-3887)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Components
Trifluoriodomethane (0.1-99.0%).
Carbon Dioxide (0.1-99.0%).

CAS Number: 2314-97-8
CAS Number: 124-38-9

3. HAZARD IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1; FIRE=0;-reactivity=0

EMERGENCY OVERVIEW
COLOR: colorless
PHYSICAL FORM: gas
ODOR: Odorless

MAJOR HEALTH HAZARDS: Difficulty breathing, respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat.

POTENTIAL HEALTH EFFECTS:
SKIN: Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.

EYES: Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.
INHALATION: The components of STAYFILL™ have a low order of toxicity, but may act as an asphyxiant if oxygen is reduced to below 16%, as indicated by paleness and possible cyanosis (blue skin).

INGESTION: Not applicable (gas at normal conditions).

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: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

EYE CONTACT: Flush eyes with plenty of water.

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: Use extinguishing agents appropriate for surrounding fire.

FIRE FIGHTING: 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 or cartridges. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

FLASH POINT: not flammable

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.
7. HANDLING AND STORAGE


HANDLING: Avoid breathing gas. Use only with adequate ventilation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS: TRIFLUOROIODOMETHANE:
No occupational exposure limits established

EXPOSURE LIMITS: CARBON DIOXIDE:
1000 ppm (9000 mg/m³) OSHA TWA
1000 ppm ACGIH TWA
1000 ppm (6000 mg/m³) NIOSH recommended TWA 10 hour(s)

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

EYE PROTECTION: For the gas: Eye protection is not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective cold insulating clothing.

GLOVES: Wear insulated gloves.

PROTECTIVE MATERIAL TYPES: leather

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

For Unknown Concentrations or Immediately Dangerous to Life or Health
- Any supplied-air respirator with full face piece and 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 face piece and is operated in a pressure-demand or other positive-pressure mode.
9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: odorless
MOLECULAR WEIGHT: 146.06
MOLECULAR FORMULA: C-F3-I;
BOILING POINT: 147°F (63.9°C) @ 101.3 kPa
FREEZING POINT: -58.9°F (-50.5°C)
SUBLIMATION POINT: -83°F (-63.8°C)
VAPOR PRESSURE: 16548 mmHg @ 20°C
VAPOR DENSITY (air=1): 5.1 @ 1 atm @ 21.1°C
WATER SOLUBILITY: slightly soluble
SPECIFIC GRAVITY (water=1): 1.68
pH: Not applicable
VOLATILITY: 100%
VOLATILITY BY VOLUME: 100%
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
VISCOSITY: 0.0156 cP @ 25°C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
  Soluble: alcohol, ether, potassium hydroxide solutions, transformer oil
  Slightly Soluble: ethanol
  Insoluble: hydrochloric acid, ammonia

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: combustible materials, metals, oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products or combustion: fluorinated compounds, oxides of sulfur, sulfur compounds, hydrogen fluoride, hydrogen sulfide

POLYMERIZATION: Will not polymerize.

11. TOXOLOGICAL INFORMATION

TRIFLUORIODOMETHANE:
ACUTE TOXICITY LEVEL: LD_{50} (rabbit): intravenous, 5790 mg/kg

CARBON DIOXIDE:
ACUTE TOXICITY LEVEL: 150,000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta)
12. ECOLOGICAL INFORMATION

FATE AND TRANSPORT:
KOW: 47.867 (log = 1.68)
KOC: 195 (log = 2.29) estimated
HENRY'S LAW CONSTANT: 4.5
ENVIRONMENTAL SUMMARY: Leaches through the soil or the sediment at a moderate rate. Highly volatile from water.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Compressed gas, n.o.s. (Trifluoroiodomethane, Carbon dioxide)
CLASS NUMBER/DIVISION: 2.2
UN IDENTIFICATION NUMBER: UN1956
PACKING GROUP: (none)
LABELING REQUIREMENTS: 2.2

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Compressed gas, n.o.s. (Trifluoroiodomethane, Carbon dioxide)
UN NUMBER: UN1956
CLASS: 2.2
PACKING GROUP/RISK GROUP: (none)

CAUTION: Compressed gas cylinders shall not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with the owner’s written consent is a violation of Federal law (49 CFR 173.301).

NAERG (NORTH AMERICAN EMERGENCY RESPONSE GUIDE) #: 126

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:
EPA - ENVIRONMENTAL PROTECTION AGENCY
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.
SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes  CHRONIC: No  FIRE: No  REACTIVE: No  SUDDEN RELEASE: Yes


IN THE EVENT OF AN EMERGENCY CALL CHEMTREC: 1-800-424-9300
OSHA PROCESS SAFETY (29 CFR1910.119):

STAYFILL™ Components: Not regulated

STATE REGULATIONS:
California Proposition 65: Not regulated

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.
TSCA 12(b) EXPORT NOTIFICATION: Not listed.
CANADA INVENTORY (DSL/NDSL): Listed on DSL.

16. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: MSDS Coordinator,
IGX Group, Inc.
Address: 490 Post St, #1700
San Francisco, CA 94102
Telephone: 415-856-0570

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

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End of MSDS