SAFETY DATA SHEET

DREXEL MASTER FUME® SPECIALTY GAS FUMIGANT

Section 1: Material Identification

Product Name: Drexel Master Fume® Specialty Gas Fumigant

EPA Reg No.: 19713-596

CAS NO: 2699-79-8

Formula: F_2O_2S

Company: Drexel Chemical Company
1700 Channel Avenue
Memphis, TN 38106

Synonyms: Sulfuryl Fluoride

Identifiers:

EINECS: 220-281-5
RTECS: WT5075000
DOT label: UN-2191, Sulfuryl Fluoride, 2.3, Poison, Inhalation, Hazard Zone D.

Emergency Telephone Number:

CHEMTREC	Drexel Chemical Co.
Tel: 1-800-424-9300	901-774-4370

This product is an EPA FIFRA registered pesticide. Some of the classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see **Section 15. REGULATORY INFORMATION** for explanation.

Section 2: Hazard Identification

(As defined by the OSHA Hazard Communication Standard, 29)

GHS Classification	Gas under pressure	Category 1
REGULATION (EC) No. 1272/2008	Acute toxicity - inhalation	Category 2
	Specific target organ toxicity single exposure inhalation	Category 1
	Specific target organ toxicity repeated exposure inhalation	Category 2
	Acute hazard to aquatic Environment	Category 1

Classification according to EU Directives 67/548/EEC or 1999/45/EC

T	R23	Toxic by inhalation.
Xn	R48/20	Harmful: danger of serious damage to Health by prolonged exposure through inhalation.
N	R50	Very toxic to aquatic organisms.

GHS label elements
Labelling – REGULATION (EC) No. 1272/2008

Hazard pictograms

Signal Word Danger

Hazard statements

H280 Contains gas under pressure; may explode if heated.
H330 Fatal if inhaled.
H370 Causes damage to kidney if inhaled.
H373 May cause damage to kidney, lung, respiratory tract, thyroid through prolonged or repeated exposure if inhaled.
H400 Very toxic to aquatic life.

Precautionary statements

P260 Do not breathe gas.
P284 Wear respiratory protection.
P307 + P311 If exposed: Call a POISON CENTER or doctor/physician.
P314 Get medical advice/attention if you feel unwell.
P405 Store locked up.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

EUH401 To avoid risks to human health and the environment, comply with instructions for use.

Section 3: Composition Information

Components	% By Wt.	OSHA PEL:	ACGIH TLV:
Active Ingredient:			
Sulfuryl Fluoride	99.8%	5 ppm	5 ppm
Inert Ingredients:	0.2%	N/A	N/A

Section 4: First-Aid Measures

Eye Contact: In case of frostbite, immediately flush eyes with water. Hold eye open and rinse slowly and gently with water

for15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Rinse mouth with water then have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. Have product label with you when calling a poison control center or doctor.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. In case of frostbite, immediately flush skin with plenty of water for 15 minutes while removing contaminated clothing and shoes. Get medical attention for treatment advice. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands.

If Inhaled: Move person to fresh air. If person is not breathing, call 911, then give artificial respiration; if by mouth to mouth use rescue protection (pocket mask etc.). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel. If the person is not breathing and has no pulse, consider cardiopulmonary resuscitation (CPR); use pocket resuscitation mask, bag valve mask etc., to avoid risk of poisoning rescuer. To prevent pulmonary edema have person inhale 5 shots of an aerosol corticosteroid metered dose inhaler (if available), such as beclomethasone or fluticasone, etc., every 10 minutes until the person is evaluated by a physician.

Note to Physician: This product is a gas which has no warning properties such as odor or eye irritation. (However, chloropicrin is used as a warning agent and is a known lachrymator). Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Maintain adequate ventilation and oxygenation of the patient. Treat for frostbite if present (eyes, skin) with gentle rewarming by water irrigation for at least 15 minutes. It is predicted that persons exposed to sulfuryl fluoride will show little evidence of intoxication at first, unless the concentration is very high (greater than 400 ppm). Early symptoms of exposure to this product are respiratory irritation and central nervous system depression. Excitation may follow. Slowed movement, reduced awareness, and slow or garbled speech may be noted. It is essential to keep such an individual at bed rest for at least 24-48 hours. Clinical observations should be directed at the pulmonary, hepatic and renal systems. Prolonged exposure can produce lung irritation, pulmonary edema, nausea, and abdominal pain. Repeated exposure to high concentrations can result in significant lung and kidney damage. Single exposures to high concentrations have resulted in death. Convulsions may ensue with respiratory arrest being the terminal event. Assisted respiration may be necessary. Clinical observation is essential. There is no known antidote for overexposure to this product. Treatment of exposure should be directed at the control of symptoms and clinical condition of the patient.

Section 5: Fire Fighting Measures

Fire Hazards: Cylinders exposed to fire may vent and release toxic gas through melted fusible plugs on cylinders.

Flammability classification (OSHA 29 CFR 1910.1200): Non Combustible.
Flash point: N/A - Non Combustible
Lower flammable limit (% by volume): N/Av
Upper flammable limit (% by volume): N/Av

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Evacuate the area and fight the fire from upwind at a safe distance to avoid hazardous vapors or decomposition products. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire-exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Dike and collect fire-extinguishing water to prevent environmental damage and excessive waste runoff.

Firefighting media: Use firefighting media suitable for the materials that are burning and use water spray to keep pressurized cylinders cool. Do not use water jet, as this may spread burning material. Contain all runoff.

Special Protective Equipment for Firefighters:
Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes

firefighting helmet, coat, trousers, boots, and gloves). Use full face shield and operate in positive pressure mode. Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Hazardous Combustion Products: Although sulfuryl fluoride is not combustible, in temperatures exceeding 400°C (752°F), it will decompose to form hydrogen fluoride and sulfur dioxide.

(NFPA):	Health:	Flammability:	Reactivity:
	3	0	1

Section 6: Accidental Release Measures

Steps to be taken if Material is Released or Spilled:

- Move leaking or damage cylinder outdoors and/or to an isolated area observing strict safety precautions. Contact Drexel Chemical Co. for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Personal Precautions:

- Evacuate unprotected personnel to upwind of release or spill. Keep personnel out of low areas where fumes may accumulate. Wear appropriate safety clothing and eye/face protection (see Section 8). Wear positive-pressure, self-contained breathing apparatus.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Section 7: Handling and Storage

KEEP OUT OF REACH OF CHILDREN

Handling: **General Handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Wear clean, body-covering clothing when handling. Keep away from heat sources. See Section 8, Exposure Controls and Personal Protection.

Storage: Store in a cool, dry, ventilated and secure area designated specifically for pesticides and away from heat sources and dwellings. Do not store in excessive heat. Do not store near children, food, foodstuffs, drugs or potable water supplies.

Section 8: Exposure Controls/ Personal Protection

Exposure Limits Sulfuryl Fluoride:

Regulation:	Type of listing:	Value/Notation:
ACGIH	TWA	5 ppm
ACGIH	TWA	BEI
ACGIH	STEL	10 ppm
ACGIH	STEL	BEI
OSHA Z-1	TWA	20 mg/m^3 5 ppm
OSHA P0	TWA	20 mg/m^3 5 ppm
OSHA P0	STEL	40 mg/m^3 10 ppm
OSHA Z-2	TWA	2.5mg/m^3, Fluorine

Personal Protection:

Eye/Face Protection: Wear splash resistant goggles to prevent vapors or mists from entering the eyes. If using a full face shield, always use goggles along with the face shield to ensure adequate protection of the eyes.

Skin Protection: Wear clean, body-covering clothing. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Gloves not needed to handle this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. When handling in enclosed areas, when large quantities of mists are generated or prolonged exposure is possible in excess of the TLV, use a NIOSH or MSHA approved positive pressure self-contained breathing apparatus (SCBA, not SCUBA) or combination of air-supplied/SCBA respirator such as manufactured by Draeger, Ranger, Survivair, Scott or MSA.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls:

Ventilation: When handling this product proper ventilation is required to maintain exposure below the exposure limits. Ventilate all transport vehicles prior to unloading. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Section 9: Physical and Chemical Properties

Physical State:	Compressed Gas
Color:	Colorless
Odor:	Odorless
Flash Point:	N/A
Vapor Pressure (mmHg):	15.2 atmospheres @ 20^{o}C
Boiling Point:	-67^{o}F (-55^{o}C)
Vapor Density (air = 1):	4.3 g/L @ 20^{o}C
Specific Gravity:	1.35
Freezing Point:	N/A
Solubility in water (wt %):	N/Av
pH:	N/A
Viscosity:	N/A
% Volatiles:	N/A

Section 10: Stability and Reactivity

Stability/Instability: No data available.

Conditions to Avoid:	Keep this product away from heat.
Incompatible Materials:	Avoid contact with strong bases.
Hazardous Polymerization:	Will not occur
Thermal Decomposition:	Decomposition products can include but are not limited to: Hydrogen fluoride, sulfur dioxide and toxic gases.

Section 11: Toxicological Information

Data presented for Sulfuryl Fluoride:

Acute Toxicity

Ingestion:

- Oral LD50: N/Av

Dermal:

- Dermal LD50: N/Av

Inhalation:

- LC50, (rat): 991 – 1,122 ppm

Eye Irritation: (rabbit):

- No hazard from gas, liquid may cause frostbite.

Skin Irritation (rabbit):

- Essentially nonirritating to skin. Liquid may cause frostbite upon skin contact.

Sensitization Skin:

- N/Av.

Carcinogenicity:

- Not likely to be carcinogenic in humans.

Teratogenicity and other reproductive effects: None known

Section 12: Ecological Information

Toxicity;
Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/l in the most sensitive species).

Fish Acute and Prolonged Toxicity
LC50 Danio rerio (zebra fish), static test, 96 h: 0.89 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, Daphnia magna (water flea), static test, 48 h, immobilization: 0.62 mg/l
Aquatic Plant toxicity
EbC50, Pseudokirchneriella subcapitata (green algae), static test, growth rate inhibition, 72 h: 1.13 mg/l
Toxicity to Above Ground Organisms
LC50, Apis mellifera (bees): 6.5 mg/l
LC50, Colinus virginianus (Bobwhite quail): 1.844 ppm

Persistence and Degradability:

No relevant data found.

Bioaccumulative potential:
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): 0.41 Estimated.

Mobility in Soil
Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient, soil organic carbon/water (Koc): 6 Estimated.

Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Section 13: Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Section 14: Transport Information

DOT: UN-2191, Sulfuryl Fluoride, 2.3, Poison Inhalation, Hazard Zone D.
IMDG: UN-2191, SULFURYL FLUORIDE, 2.3, POISON, INHALATION HAZARD, ZONE D.
ICAO/IATA: Forbidden on both passenger and cargo aircraft per IATA due to inhalation.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material

Section 15: Regulatory Information

OSHA Hazard Communication Standard:

- **This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.**
- **EPA FIFRA INFORMATION**
  This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemical. The hazard information required on the pesticide label is listed out below. The pesticide label also includes other important information, including directions for

use.

- **EPA/CERCLA Reportable Quantity**: None Known

SARA/TITLE III:

- **Sec 302: Extremely Hazardous Substance Notification**: This material is not known to contain any Extremely Hazardous Substances.
- **Sec. 311/312. Hazard Categories:** Sudden release
  Immediate health hazard
  Chronic health hazard
- **Section 313 Toxic Chemical(s):** Sulfuryl Fluoride (CAS 2699-79-8)
- **RCA Waste Code: Not applicable**

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986):

- This product is not listed.

Toxic Substances Control Act (TSCA):

- All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

Section 16: Other Information

Drexel Chemical Company recommends that each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown below. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific SDSs, we are not and cannot be responsible for SDSs obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us for the most current version.

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