Material Safety Data Sheet
ZYTHOR GAS FUMIGANT

1. PRODUCT AND COMPANY IDENTIFICATION
Product Name: Zythor
Chemical Name: Sulfuryl fluoride
Company: Ensysystex II, Inc.
Address: 2709 Breezewood Ave., Fayetteville, NC 28303
Daytime Phone: 1-800-398-3772

2. COMPOSITION / INFORMATION ON INGREDIENTS
Sulfuryl fluoride 99.3% CAS#: 2699-79-8 EINECS#: 220-281-5
Carbon dioxide 0.5% CAS#: 124-38-9

3. HAZARDS IDENTIFICATION
Compressed gas harmful by inhalation. Sulfuryl fluoride has no warning properties such as odor, color or eye irritation. Exposure to toxic and even lethal levels may occur without warning or detection during a single exposure. Evacuate immediate area if leak occurs. Releases hydrogen fluoride upon decomposition by high heat.

4. FIRST-AID
In all cases of overexposure, when symptoms such as nausea, difficulty in breathing, abdominal pain, slowing of movements and speech or numbness in extremities are exhibited, get medical attention immediately. Take affected person to a doctor or emergency treatment facility.

Inhalation: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Excessive exposure may severely irritate upper respiratory tract. Consult a physician in all cases.

Eye Contact: Hold eye open and rinse slowly and gently with water for at least 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Liquid fumigant in the eye may cause damage due to refrigeration or freezing.

Skin Contact: Immediately apply water to contaminated area of clothing before removing. Once area has thawed, remove contaminated clothing, shoes and other items covering skin. Rinse skin immediately with plenty of water for 15-20 minutes.

Note to Physician: Sulfuryl fluoride is a gas that has no warning properties such as odor, color or eye irritation. (Chloropicrin, (CAS# 76-06-2) which is used as a warning agent in conjunction with sulfuryl fluoride, is the active ingredient in tear gas and will cause tearing.) Early symptoms of exposure to sulfuryl fluoride are respiratory irritation and central nervous system depression. Excitation may follow. Slowed movement, reduced awareness and slow or garbled speech may be noted. Such individuals should rest in bed for at least 24 hours. 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 at high concentrations have resulted in death. Treat symptomatically.

5. FIRE-FOIGHTING MEASURES
Extinguishing Media: This product does not burn. All means of extinguishing are acceptable. If cylinders are in a fire area, remove them if possible. Alternately, water can be used to keep them cool to prevent discharge of product due to the melting of fusible plugs in the cylinder valves which will occur at temperatures above 150°F. Use of water may also help to scrub out part of any hydrofluoric acid and sulphur dioxide which may be formed by decomposition of the product in a fire.

Hazardous Combustion Products: At temperatures above 752°F, sulfuryl fluoride will decompose into hydrogen fluoride and sulfur dioxide.

Fire fighting Equipment: Firefighters should wear protective clothing and use self-contained breathing apparatus. When fighting fires in atmospheres containing potentially high concentrations of sulfuryl fluoride, encapsulating protective suits should be worn due to possible formation of hydrofluoric acid. Protective suit material should be compatible with exposure to hydrofluoric acid.

6. ACCIDENTAL RELEASE MEASURES
Personal Precautions: Wear appropriate safety clothing, respiratory protection devices and eye/face protection (see Section 8). Evacuate unprotected personnel that are nearby.

Leak Procedure: Evacuate immediate area of leak. Move leaking cylinder to an isolated location observing strict safety precautions. If safe to do so, try to stop leak. Work upward from the cylinder, if possible. Entry into affected area(s) by persons not using approved respiratory protection devices is not permitted until the concentration of sulfuryl fluoride in the air of the affected area(s) is determined to be 1 ppm or less, as determined by an approved Low Fumigant Level Detection Device (such as ExplorIR, Interscan, or Miran gas analyzer).

7. HANDLING AND STORAGE
Handling: Use good personal hygiene. Follow proper cylinder handling directions. See Section 8 for control measures.

Storage: Keep out of reach of children. Product should be stored in compliance with local regulations. Store in a well ventilated, cool, dry area. Keep away from heat sources.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Ventilation and respiratory protection information given below is applicable to handling sulfuryl fluoride during production, packaging, transportation and storage. Applicators should refer to the product label for personal protection equipment requirements during application.

Exposure Limits: ACGIH TLV is 5 ppm TWA, 10 ppm STEL. OSHA PEL is 5 ppm TWA. Provide general and/or local exhaust ventilation to control airborne levels below the exposure limits.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required or during emergency conditions, use a NIOSH approved positive pressure self-contained breathing apparatus or positive pressure airline with auxiliary self-contained air supply.

Hand/Skin Protection: No skin protection should be needed. Skin contact with the liquid may cause freeze damage if the liquid is confined to the skin. Do not wear gloves or rubber boots.

Eye/Face Protection: Chemical proof goggles / face shield

9. PHYSICAL AND CHEMICAL PROPERTIES
Appearance/Odor: Colorless, odorless
Relative vapor density (air=1): 3.5 at 68°F (20°C)
Boiling point/range: -67°F (-55.4°C)
Water solubility: Practically insoluble
Vapor pressure: 15.2 atmospheres at @ 68°F (20°C)

10. STABILITY AND REACTIVITY
Chemical Stability: Stable under normal storage conditions.
Conditions to Avoid: Avoid heating product to its decomposition temperature.

Materials to Avoid: Strong bases.

Hazardous Decomposition Products: Hydrogen fluoride and sulfur dioxide upon heating above decomposition temperature.

Additional Information: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION
Acute Toxicity: Inhalation LC50/Rat/991 ppm Oral LD50/Rat/100mg/kg
Irritation: Reacts with mucous membranes
Chronic Toxicity: Inhalation, after repeated exposure, various species,
Target organ: respiratory system, nervous system, kidney, skeleton, 20 ppm, observed effect
No teratogenic effect.

Carcinogenic Designation: None

12. ECOTOXICOLOGICAL INFORMATION
Acute Ecotoxicity: No Data
Chronic Ecotoxicity: No Data

Other effects: Product is known to have herbicide and insecticide properties.

13. DISPOSAL CONSIDERATIONS
Promptly return all empty cylinders to Ensysystex II. Follow proper cylinder handling and waste disposal guidelines (see label).

14. TRANSPORT INFORMATION
DOT Proper Shipping Name: Sulfuryl Fluoride; Technical Shipping Name: Sulfuryl Fluoride; DOT Hazard Class: 2.3; DOT Label: Poison Gas; DOT Packing Group: Inhalation Hazard Zone D ; DOT #: UN2191

15. REGULATORY INFORMATION
The information herein is given in good faith, but no warranty, expressed or implied, is made. Consult Ensysystex II for further information.

OSHA HAZARD COMMUNICATION STANDARD: This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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