

INTERNATIONAL_GASES_AND_CHEMICALS_LTD

MATERIAL SAFETY DATA SHEETS

DATE: 10/29/04

SUPPLIER ADDRESS: SPEEDWELL RD
PARKHOUSE EAST
NEWCASTLE-U-LYME

EMERGENCY PHONE: (178) 256-5556
NUMBER

1. CHEMICAL PRODUCT

PRODUCT NAME: FLUORINE

SYNONYMS: None

2. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredient Name	Formula	CAS#	Concentration	Exposure Limits (PPM)			
				ACGIH TLV	OSHA PEL	MAC	Other STEL
FLUORINE	F2	7782-41-4	99+%	1	0.1	1	2

3. HAZARD IDENTIFICATION

*** EMERGENCY OVERVIEW ***

Poisonous, oxidizing, corrosive gas under pressure.
Can cause severe eye, skin and respiratory tract burns.
Extremely reactive.
Vigorously accelerates combustion.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation , Skin

ACUTE EFFECTS: Can be absorbed through the skin. This material will severely irritate and damage the skin, eyes, mucous membranes and upper respiratory tract. Exposure to high concentrations is usually fatal, respiratory damage and pulmonary edema being the cause of death. Corrosive and irritating to the eyes, skin and all living tissue. May cause severe burns when exposed to tissue. Symptoms include lacrimation, cough, labored breathing and excessive salivary and sputum formation.

CHRONIC EFFECTS: Bronchitis. Over exposure may lead to Fluorosis, an abnormal calcification pattern of the skeletal system.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Kidney disease, and impaired pulmonary function.

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY (US Only):

NTP - No
IARC MONOGRAPHS - No
OSHA REGULATED - No

Continued ...

_4._FIRST_AID_MEASURES

INHALATION: Immediately remove victim to fresh air. Give victim 100% oxygen if breathing has not stopped; give 100% oxygen with artificial respiration if breathing has stopped.

EYE CONTACT: Do not allow victim to rub or keep eyes tightly shut. Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. Seek medical attention as soon as possible.

SKIN CONTACT: Immediately flush with copious amounts of water for at least 15 minutes while removing contaminated clothing. Continue washing for 2-4 hours with water or preferably, soak in iced sephiran (13%), epsom salt or 70% denatured ethyl alcohol solution for 1-4 hours depending on severity of burns.

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: For frostbite, consider rapid rewarming at 42 deg.C.

_5._FIRE_FIGHTING_MEASURES

FLASH POINT: Nonflammable

AUTOIGNITION TEMPERATURE: N/Ap

FLAMMABLE LIMITS: Nonflammable

LOWER:

UPPER:

EXTINGUISHING MEDIA: Use what is appropriate for surrounding fire. Do not direct waterspray on to leak.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing. Keep fire exposed cylinders cool with water spray. If possible, stop the product flow.

HAZARDOUS COMBUSTION PRODUCTS: Highly corrosive fluoride fumes.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Cylinder rupture may occur under fire conditions. Oxidizer that accelerates the combustion of other materials. This material reacts with water and moisture.

_6._ACCIDENTAL_RELEASE_MEASURES

CLEAN UP PROCEDURES: Evacuate and ventilate area. Remove leaking cylinder to exhaust hood or safe outdoor area. Shut off source if possible and remove source of heat.

SPECIALIZED EQUIPMENT: None

_7._HANDLING_AND_STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas. Keep valve protection cap on cylinders when not in use.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to maintain concentration below exposure limits.

PERSONAL PROTECTION

EYE/FACE PROTECTION: Safety glasses . A safety shower and eyewash station should be readily available.

SKIN PROTECTION: Impervious gloves, coveralls, boots, and/or other resistant protective clothing.

RESPIRATORY PROTECTION: Use a self-contained breathing apparatus in case of emergency or non-routine use. DO NOT use gas masks with activated carbon filters in atmospheres of high concentrations of this gas because the carbon may spontaneously ignite.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless to pale yellow
ODOR: Irritating pungent odor.
PHYSICAL STATE: Gas
VAPOR PRESSURE: N/Ap
VAPOR DENSITY (AIR=1): 1.695
BOILING POINT (C): -187
SOLUBILITY IN WATER: N/Av
SPECIFIC GRAVITY (H2O=1): @118 deg. C:
1.108
EVAPORATION RATE: N/Av
ODOR THRESHOLD: 0.035 ppm

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source.

MATERIALS TO AVOID: Reacts violently with phosphine, hydrazine, ethers, alcohols, hydrogen sulfide, and hydrocarbons. Reacts vigorously with water or moisture. Reducing agents. Avoid contact with metals. Combustibles.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: None.

11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC50): 185 ppm, Rat 1 hour.
LETHAL DOSE 50 (LD50): N/Ap
TERATOGENICITY: N/Ap
REPRODUCTIVE EFFECTS: N/Ap
MUTAGENICITY: N/Ap

12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or

exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

14. TRANSPORT INFORMATION

CONCENTRATION: 99+%
DOT DESCRIPTION (US ONLY):
PROPER SHIPPING NAME: Fluorine, compressed
HAZARD CLASS: 2.3 (poison), Hazard Zo A
IDENTIFICATION NUMBER: UN1045
REPORTABLE QUANTITIES: 10 lbs
LABELING: POISON GAS, OXIDIZER, CORROSIVE.

ADR/RID (EU Only): Class 2, 1toc

SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

15. REGULATORY INFORMATION

OSHA: Process Safety Management: Material is listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for this material is 500 lbs

EU NUMBER: 231-954-8

NUMBER IN ANNEX 1 OF DIR 67/548: Material is listed in annex 1.

EU CLASSIFICATION: N/Av

R: 7-26-35

S: 7/9-36-45

16. OTHER INFORMATION

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent

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is a violation of federal law (49 CFR).

ABBREVIATIONS:

N/Ap - Not Applicable
N/Av - Not Available
SA - Simple Asphyxiant
NE - None Established

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