

MATERIAL SAFETY DATA SHEET

This sheet is to inform you of any hazards that may be associated with this product. However, Thermo Electron Corporation claims no responsibility for its completeness or accuracy. This data does not relate to any use of this product, alone or in combination with any other material or processes.

Thermo

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General Information

Chemical name: Calcium fluoride
Chemical family: Inorganic salt
Formula: CaF_2
Molecular weight: 78.08 g/mole

Hazardous Ingredients/Identity Information

Component: Calcium fluoride
CAS number: 7789-75-5
Approx. % 100%

Physical/Chemical Characteristics

Boiling point (C 760 mm Hg): 2500°C
Melting point: 1402°C
Specific gravity (water = 1): 3.18
Bulk density: Not available
Vapor pressure (mm Hg): Not applicable
% Volatile by weight: Not applicable
Vapor density (air = 1): Not applicable
Evaporation rate (butyl acetate = 1): Not applicable
pH aqueous solution: Not determined
Solubility in water (%): Insoluble
Appearance: Colorless to whitish solid, no odor

Fire and Explosion Hazard Data

Flash point (°F): Not ignitable. Flash point not applicable.
Flammable limits LEL (%): Not applicable
Flammable limits UEL (%): Not applicable
Autoignition: Not applicable
Extinguishing media: Flood with water or use carbon dioxide, foam or dry chemical.

Fire fighting procedures

Positive-pressure, self-contained breathing apparatus and structural firefighter's protective clothing as required for other materials present.

Fire and explosion hazards

Irritating or toxic gases, fumes, smoke or particulates. Unusual fire or explosive hazards are not expected. Relative hazard is anticipated to be the same as normal combustible materials.

Reactivity Data

Stability: Stable under normal conditions of storage or use.
Hazardous polymerization: Will not occur under normal conditions of storage or use.
Hazardous decomposition: Toxic metal fumes and particles
Conditions to avoid: Extreme heat

Materials to avoid:

- Water
- Acids
- Bases
- Corrosives
- Oxidizers
- Other: Hot sulfuric acid

Health Hazard Data

Emergency overview

Caution: May cause respiratory tract irritation. May cause skin irritation. May cause eye irritation.
Appearance: Colorless to whitish solid, no odor.

Potential health effects (acute and chronic)

Symptoms of exposure:

Eyes: Dust may irritate eyes.
Skin: May irritate skin.
Inhalation: Dust irritates respiratory tract.
Ingestion: Not believed to be toxic.
Target organ effects: May cause central nervous system or skeletal effects. Long term overexposure to fluorides may cause skeletal effects or possibly damage to skin and kidneys.

Routes of entry: Eye and skin contact and inhalation are anticipated as possible routes of exposure. Ingestion is not expected.

Carcinogenicity: This material is not known to cause cancer in humans or animals.

Medical conditions aggravated by exposure: Existing skin, kidney, skeletal, nervous system or heart conditions.

First aid measures

Emergency first aid:

Eyes: Flush with copious amounts of water for fifteen minutes. Get medical attention if symptoms persist.
Skin: Remove excess material and wash affected skin with soap and water. Gently dry area with clean towel.
Inhalation: Remove patient to uncontaminated area. If patient is not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Ingestion: Induce vomiting if patient is conscious and as directed by a physician. Never give anything by mouth to an unconscious person. Get medical attention.

Notes for EMS: Emergency treatment information is not available for this product.

Toxicological information

Toxicity data: Oral (rat) LD₅₀: 4250 mg/kg

Toxicological findings: Long term overexposure to fluorides may cause skeletal effects or possibly damage to the skin and kidneys.

Precautions for Safe Handling and Use

Accidental release measures

Spill response: Evacuate the area of all unnecessary personnel.

Wear suitable protective equipment listed under "Exposure controls/personal protection" below.

Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards.

Contain the release and eliminate its source if this can be done without risk.

Take up and containerize for proper disposal as described in the "Disposal Data" section.

Comply with federal, state and local regulations on reporting releases. See the "Label Data" section for reportable quantity and regulatory data.

EM Industries recommends SPILL-X neutralizers and absorbent agents for various types of spills. Additional information on the SPILL-X products can be provided through the EM Science Technical Service Department; telephone 609-354-9200.

Handling and storage

Keep container tightly closed. Store in general chemical storage. Protect against physical damage. Handle carefully. Store away from incompatible materials. Avoid generating dust or vapors.

Exposure controls/personal protection

Engineering controls and personal protective equipment, described below.

Ventilation, respiratory protection, protective clothing, eye protection:

Safety goggles or safety glasses with side shields are required.

Impervious gloves made of chemically resistant materials are required. Use of a laboratory coat is also suggested.

NIOSH or MSHA approved and properly fit tested dust respirator.

High efficiency particulate absolute (HEPA) type is recommended for use with this material.

Respirators must be worn when the applicable threshold limit value (TLV) or permissible exposure limit (PEL) is exceeded.

Provide adequate general mechanical ventilation and local exhaust ventilation (75-100 cfm).

Work/hygienic Practices

When handling quantities of material, be sure to wear appropriate protective equipment as described.

Respirators must be worn when permissible exposure limit (PEL) or threshold limit value (TLV) is exceeded.

Eye wash and safety shower should be readily available.

Wash thoroughly after handling. Do not take internally. Avoid breathing dust or vapor when generated. Persons with sensitive existing medical conditions should not be employed in tasks involving exposure to this material.

Mechanical ventilation of work areas should be provided where the material is being used. A minimum velocity of 75 to 100 cfm (cubic feet per minute) is recommended.

Exposure Guidelines

OSHA-PEL:

Component	TWA		STEL		CL		Skin
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	
Calcium fluoride		2.5 F					

ACGIH-TLV:

Component	TWA		STEL		CL		Skin
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	
Calcium fluoride		2.5 F					

Transportation Data

DOT proper shipping name:	Not regulated
DOT technical name:	Technical name not required
DOT ID number:	Not applicable
DOT hazard class:	Not applicable
DOT subsidiary risk:	Not applicable
DOT packing group:	Not available
DOT label(s) required:	Not applicable
DOT other:	Not applicable
IATA proper shipping name:	Not regulated
IATA ID number:	Not applicable
IATA hazard class:	Not applicable
IATA subsidiary risk:	Not applicable
IATA packing group:	Not available
IATA label(s) required:	Not applicable
IATA other:	Not applicable
IMDG proper shipping name:	Not regulated
IMDG ID number:	Not applicable
IMDG hazard class:	Not applicable
IMDG subsidiary risk:	Not applicable
IMDG packing group:	Not available
IMDG label(s) required:	Not applicable
IMDG other:	Not applicable

Disposal Data

EPA waste numbers: Not available

Treatment: Not applicable; material is a non-hazardous and non-regulated solid waste. Send bulk or containerized wastes of this material to a secure industrial landfill or thermal oxidation facility.

Incineration is not recommended for inorganics.

These methods are drawn from 40 CFR, Protection of Environment, and are to be applied only after thorough review of all applicable methods of treatment or treatment standards. The waste generator is advised to contract with a licensed treatment, storage and disposal facility when arranging for final disposal and to consult state and local authorities to determine whether any additional regulatory requirements need to be met.

Label Data

Regulatory information

TSCA inventory: Not available

TSCA statement: The components of this material appear in the Toxic Substances Control Act (TSCA) Chemical Substances Inventory and are available for commercial use.

OSHA specifically regulated: This material is not regulated by OSHA.

TSCA memo: None

SARA Title III hazard categories

- Acute health
- Chronic health
- Flammability
- Sudden release of pressure
- Reactivity

Component	SARA EHS (302)	SARA EHS TPQ (lbs)	CERCLA RQ (lbs)
Calcium fluoride	Not known	Not known	Not known

Component	OSHA Floor List	SARA 313	DeMinimis for SARA 313 (%)
Calcium fluoride	Not known	Not known	Not known

Other information

Comments: None

HMIS hazard ratings

Health: 1

Flammability: 0

Reactivity: 0

Protective equipment: E

Special hazards: Not available

Disclaimer

We have compiled the information and regulations contained in this Material Safety Data Sheet from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, quantity or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products.

