MATERIAL SAFETY DATA SHEET
CALCIUM FLUORIDE

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	:	Calcium fluoride
CAS	:	7789-75-5
Synonym	:	Fluorspar, Irtran; Calcium Difluoride
Chemical Name	:	Calcium Fluoride
Chemical formula	:	CaF2
Molecular weight	:	78.08

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SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Composition:

Chemical Name	CAS #	% weight
Calcium fluoride	7789-75-5	100

Toxicological Data on Ingredients: Calcium fluoride: ORAL (LD50): Acute: 4250 mg/kg [Rat].

SECTION 3: HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance may be toxic to blood, kidneys, lungs, liver, cardiovascular system, skin, bones, central nervous system (CNS), teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

SECTION 4: FIRST AID MEASURES

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

Cold water may be used. WARM water MUST be used. Get medical attention.
Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation: Not available.
Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
Serious Ingestion: Not available.

SECTION 5: FIRE AND EXPLOSION DATA

Flammability of the Product: Non-flammable.
Auto-Ignition Temperature: Not applicable.
Flash Points: Not applicable.
Flammable Limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards in Presence of Various Substances: Not applicable.
Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions: Not applicable.
Special Remarks on Fire Hazards: When heated to decomposition it emits toxic fumes of hydrogen fluoride
Special Remarks on Explosion Hazards: Not available.

SECTION 6: ACCIDENTAL RELEASES MEASURE

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill:
Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

SECTION 7: HANDLING AND STORAGE

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
Storage: Hygroscopic. Keep container tightly closed. Keep container in a cool, well-ventilated area.

SECTION 8: PERSONAL PROTECTION

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to

avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits:
TWA: 2.5 Consult local authorities for acceptable exposure limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance: Solid. (Powdered solid.)
Odor: Not available.
Taste: Not available.
Molecular Weight: 78.08 g/mole
Color: White. Off-white.
pH (1% soln/water): Not available.
Boiling Point: 2500°C (4532°F)
Melting Point: 1403°C (2557.4°F)
Critical Temperature: Not available.
Specific Gravity: 3.18 (Water = 1)
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: Not available.
Solubility:
Very slightly soluble in cold water. Insoluble in acetone. Solubility in water: 0.0015g/100 ml water @ 18 deg C. Slightly soluble in dilute mineral acids. Soluble in ammonium salts.

SECTION 10: STABILITY AND REACTIVITY DATA

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Incompatible materials, dust generation
Incompatibility with various substances: Not available.
Corrosivity: Not available.
Special Remarks on Reactivity:
Hygroscopic; keep container tightly closed. Reacts with hot concentrated sulfuric acid to liberate hydrogen fluoride. There is a hazard of Hydrofluoric acid being formed.
Special Remarks on Corrosivity: Not available.
Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation. Ingestion.
Toxicity to Animals: Acute oral toxicity (LD50): 4250 mg/kg [Rat].
Chronic Effects on Humans:
DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. May cause damage to the following organs: blood, kidneys, lungs, liver, cardiovascular system, skin, bones, central nervous system (CNS), teeth.
Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals: Not available.
Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenic). May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data.
Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: May cause eye irritation. Inhalation: Causes respiratory tract irritation. Ingestion: May cause gastrointestinal irritaiton with nausea, vomiting and diarrhea, salivation, thirst, abdominal pain, fever, labored breathing (respiratory depression, apnea, dyspnea). Exposure to fluorides may also cause disturbed color vision, hypocalcemia, hyperkalemia, and hypomagnesemia, and may result in systemic toxic effects on the heart/ cardiovascular system (hypotension, tachycardia, arrhythmia, weak pulse, cardiovascular collapse), liver (hepatic enzymes increased), and kidneys (abnormal renal function, renal damage). It may also affect behavior/Central Nervous System (CNS depression - headache, dizziness, weakness, somnolence, ataxia, loss of conciousness). Other neurological symptoms of acute

fluoride ingestion may include muscle weakness, difficulty speaking, fitfulness(hyperreflexia), tetany, numbness or tingling of the extremities. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause dermatitis. Inhalation: Prolonged or repeated inhalation may cause bronchitis, asmtha, silicosis, increase in respiratory infections, pulmonary lesions. Ingestion: Prolonged or repeated ingestion cause diseases of the blood, teeth, bones and other organs (osteosclerosis, fluorosis). (Fluorisis is characterized by vomiting, diarrhea or constipation, weakness joint stiffness, loss of appetite, anemia).

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.
BOD5 and COD: Not available.
Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.
Special Remarks on the Products of Biodegradation: Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Classification: Not a DOT controlled material (United States).
Identification: Not applicable.
Special Provisions for Transport: Not applicable.

SECTION 15: OTHER REGULATORY INFORMATION

Other Classifications:
WHMIS (Canada): CLASS E: Corrosive solid.
DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.
S24/25- Avoid contact with skin and eyes.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36- Wear suitable protective clothing.
HMIS (U.S.A.):
Health Hazard: 2
Fire Hazard: 0
Reactivity: 0
Personal Protection: j
National Fire Protection Association (U.S.A.):
Health: 2
Flammability: 0
Reactivity: 0
Specific hazard:
Protective Equipment:
Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

SECTION 16: OTHER INFORMATION

Product Use:

Laboratory Reagent.

Disclaimer:

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