Date of Issue:
18 April 2014

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 180
SRM Name: High-Grade Fluorspar
Other Means of Identification:

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is intended primarily for use in geological and geochemical analysis. A unit of SRM 180 consists of one bottle containing approximately 120 g of fine high-grade fluorspar powder.

Company Information

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200
FAX: 301-948-3730
E-mail: SRMMSDS@nist.gov
Website: http://www.nist.gov/srm

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1-800-424-9300 (North America)
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2. HAZARDS IDENTIFICATION

Classification

Physical Hazard: Not classified.
Health Hazard: Not classified.

Label Elements

Symbol: No symbol.

Signal Word: No signal word.

Hazard Statement(s): Not applicable.

Precautionary Statement(s): Not applicable.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Fine high grade fluorspar powder

Other Designations: Fluorite (CaF_2); calcium fluoride; liparite (fluorite); fluorspar; natural fluorite

NOTE: Components are listed in compliance with OSHA's 29 CFR 1910.1200. The health and physical hazard information provided in this SDS is for calcium fluoride, the main component of fluorspar ore.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Fluorspar (Calcium fluoride)	7789-75-5	232-188-7	98.8

4. First Aid Measures

Description of First Aid Measures

Inhalation: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Seek immediate medical attention.

Skin Contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eye Contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Ingestion: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. Allow vomiting to occur. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediate.

Most Important Symptoms/Effects, Acute and Delayed: Little acute toxicity, usually no treatment needed.

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek immediate medical attention.

5. Fire Fighting Measures

Fire and Explosion Hazards: Negligible fire hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media

Suitable: Use extinguishing agents appropriate for surrounding fire.

Unsuitable: None listed.

Specific Hazards Arising from the Chemical: Not applicable.

Special Protective Equipment and Precautions for Fire-Fighters: Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by-products. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 0 Reactivity = 0

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection". Keep out of waters supplies and sewers.

Methods and Materials for Containment and Clean up: Collect spilled material in appropriate container for disposal. Avoid generating dust. Clean up residue with a high-efficiency particulate filter vacuum.

7. Handling and Storage

Safe Handling Precautions: Avoid generating dust. See Section 8, "Exposure Controls and Personal Protection".

Storage and Incompatible Materials: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (See Section 10, "Stability and Reactivity").

8. Exposure Controls and Personal Protection

Exposure Limits (as F, related to Fluorides)

OSHA (PEL):	2.5 mg/m^3 (TWA)
ACGIH (TLV):	2.5 mg/m^3 (TWA)
NIOSH (REL):	No occupational exposure limits establish.

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection Measures: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye Protection: Splash resistant safety goggles and emergency eyewash are recommended.

Skin and Body Protection: Chemical resistant clothing and gloves are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	**Fluorspar**
Molar Mass (g/mol)	78.08
Molecular Formula	CaF_2
Appearance (physical state, color, etc.)	white, hygroscopic fine powder
Odor	odorless
Odor threshold	not available
pH	not available
Evaporation rate	not available
Melting point/freezing point	1423 °C (2593.4 °F)
Relative Density as Specific Gravity (water = 1)	3.18 at 20 °C (solid)
Vapor Pressure	not available
Vapor Density (air = 1)	not available
Viscosity	not applicable
Solubilities	soluble: 0.0017 % (26 °C) in water, ammonium salt solutions slightly soluble: dilute mineral acids insoluble: acetone
Partition coefficient (n-octanol/water)	not available
Particle Size	not available
Thermal Stability Properties	
Autoignition Temperature	not applicable
Thermal Decomposition	not available
Initial boiling point and boiling range	≈2500 °C (≈4532 °F)
Explosive Limits, LEL (Volume %)	not applicable
Explosive Limits, UEL (Volume %)	not applicable
Flash Point	not applicable
Flammability (solid, gas)	not applicable

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: X Stable _____ Unstable

Possible Hazardous Reactions: Not applicable.

Conditions to Avoid: Avoid generating dust.

Incompatible Materials: Acids.

Hazardous Decomposition: Halogenated compounds.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: X Inhalation _____ Skin X Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Little acute toxicity, usually no treatment needed.

Potential Health Effects (Acute, Chronic, and Delayed)

Inhalation: Acute: minor upper respiratory tract irritation; chronic: may cause loss of weight and appetite, anemia, and bone and teeth defects. Pulmonary lesions have been reported among person inhaling dust particulates.

Skin Contact: Generated dust or powder exposure may result in mechanical irritation.

Eye Contact: Irritation and possible eye damage through mechanical abrasion.

Ingestion: Same as inhalation.

Numerical Measures of Toxicity

Acute Toxicity: Not classified.
Rat, Oral LD50: 4250 mg/kg

Skin Corrosion/Irritation: Not classified.

Serious Eye Damage/Eye Irritation: Not classified.

Respiratory Sensitization: No data available.

Skin Sensitization: No data available.

Germ Cell Mutagenicity: No data available.

Carcinogenicity: Not classified.
Listed as a Carcinogen/Potential Carcinogen ____ **Yes** __X__ **No**
Fluorspar is not listed by IARC, NTP, or OSHA as a carcinogen.

Mutagenic: Rat, TD: 1 g/kg

Reproductive Toxicity: Not classified.
Mouse, Intraperitoneal TDLo: 3200 mg/kg (9 d pregnant)

Specific Target Organ Toxicity, Single Exposure: Not classified.

Specific Target Organ Toxicity, Repeated Exposure: Not classified.

Aspiration Hazard: Not applicable.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No ecotoxicity data available.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Not regulated by DOT or IATA.

15. REGULATORY INFORMATION

U.S. Regulations
CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH:	No
CHRONIC HEALTH:	No
FIRE:	No
REACTIVE:	No
PRESSURE:	No

State Regulations: California Proposition 65: Not listed.

U.S. TSCA Inventory: Calcium fluoride is listed.

TSCA 12(b), Export Notification: Not listed.

Canadian Regulations: WHMIS Information: Not provided for this material.

16. OTHER INFORMATION

Issue Date: 18 April 2014

Sources: ChemADVISOR, Inc., MSDS *Calcium Fluoride*, 23 December 2013.

ChemADVISOR, Inc., MSDS *Fluorspar*, 23 December 2013.

ChemID*plus* Advanced, National Institutes of Health, Department of Health & Human Services, U.S. National Library of Medicine, *Calcium Fluoride CAS# 7789-75-5*; available at http://chem.sis.nlm.nih.gov/chemidplus/ (accessed April 2014).

CAMEO Chemicals, Office of Response and Restoration, NOAA's Ocean Service, National Oceanic and Atmospheric Administration, *Calcium Fluoride CAS# 7789-75-5*, *CAF*; available at http://cameochemicals.noaa.gov/search/simple (accessed April 2014).

Hazardous Substances Data Bank (HSDB), National Institutes of Health, Department of Health & Human Services, U.S. National Library of Medicine, *Calcium Fluoride CAS# 7789-75-5*; available at http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB (accessed April 2014).

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	TLV	Threshold Limit Value
LEL	Lower Explosive Limit	TPQ	Threshold Planning Quantity
MSDS	Material Safety Data Sheet	TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health	UEL	Upper Explosive Limit
NIST	National Institute of Standards and Technology	WHMIS	Workplace Hazardous Materials Information System
n.o.s.	Not Otherwise Specified		