1. Identification of the substance or preparation

1.1. Identification of the substance or preparation

**FLUORITE**

There are three principal types of industrial use for fluorite, corresponding to different grades of purity. Metallurgical grade fluorite, the lowest of the three grades, has traditionally been used as a flux to lower the melting point of raw materials in steel production to aid the removal of impurities, and later in the production of aluminum. Ceramic (intermediate) grade fluorite is used in the manufacture of opalescent glass, enamels and cooking utensils. The highest grade, acid grade fluorite, is used to make hydrofluoric acid by decomposing the fluorite with sulfuric acid. Hydrofluoric acid is the primary feedstock for the manufacture of virtually all organic and inorganic fluoride-containing compounds, including fluoro-polymers and perfluorocarbons, and is also used to etch glass.

**1.2. Use of the substance/preparation**

1.2.1. CAS
1.2.2. EINECS

**1.3. Identification of the company/undertaking**

**FLUORIT TEPLICE s.r.o.**

Důlní 428
415 01 Teplice
Czech Republic
IC: 482 643 77
Phone: +417 560 030
Tel.:+420 728 107 308
strec@fluorit.cz

**1.4. Emergency telephone.**

Toxikologické informační středisko (TIS), Klinika nemocí z povolání,
Na Bojišti 1, Praha 2
Nouzové telefonní číslo: +420 224 919 293, +420 224 915 402
Responsible for receiving information relating to health.
fluorspar, fluoride, Fluorspar, flu spat, met-spar, acid-spar,
fluorspar, fluoride, calcium fluoride, calcium di fluoride
spar-flu

**1.5. Synonyms**

fluorspar, fluoride, Fluorspar, flu spat, met-spar, acid-spar,
fluorspar, fluoride, calcium fluoride, calcium di fluoride
spar-flu

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance

Substance is not classified as dangerous according to Directive 1999/45/EC.

2.2. Information concerning particular hazards for human

Non-flammable, yellow, white, gray and light brown powder. Inhalation of high concentrations may cause transitory upper respiratory irritation. Particulate matter may scratch the eyes. This product may contain small amounts of crystalline silica (< 0.2%). Inhalation of high dust concentrations may result in over-exposure. Avoid dust creation. Do not inhale dusts from this product. Do not use compressed air or dry sweeping to remove dusts from the work area. Use appropriately equipped vacuum or wet clean-up methods to remove dusts.

TWA; LV 2,5 mg/m³

Substance is not classified as dangerous according to Directive 1999/45/EC. Fluorite is substances which occur in nature; minerals. See Annex REACH

2.3. Information concerning particular hazards for environment

Inhalation of high concentrations may cause transitory upper respiratory irritation.
hazards of the material.

2.5. The information shown on the label

The information shown on the label are under heading 15.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Full composition

Product includes CaF₂ (> 95 %), SiO₂ (< 3 %), CaCO₃ (< 3 %). Product contains no hazardous substances. Fluorite is not chemically modified. The following substances which occur in nature: Minerals, ores, ore concentrates, raw and processed natural gas, crude oil, coal.

#### 3.2. Classification of the substance

Substance is not classified as dangerous according to Directive 1999/45/EC. "ANNEX V EXEMPTIONS FROM THE OBLIGATION TO REGISTER IN ACCORDANCE WITH ARTICLE 2(7)(b)

#### 3.2.1. a) substances presenting a health or environmental hazard

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS</th>
<th>PEL</th>
<th>NPK-P</th>
<th>Notes</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride, inorganic</td>
<td>mg.m⁻³</td>
<td>2,5</td>
<td>-</td>
<td>ppm</td>
<td>-</td>
</tr>
</tbody>
</table>

#### 3.2.2. b) Substances for which there are Community workplace exposure limits, which are not already included under point 3.2.1. a)

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS</th>
<th>Description</th>
<th>Concentration limits given in Annex I to Directive 67/548/EEC, mg.m⁻³</th>
</tr>
</thead>
</table>

#### 3.2.3. c) substances that are persistent, bioaccumulative and toxic or very persistent and very bioaccumulative in accordance with the criteria set out in Annex XIII, if the concentration of an individual substance is equal to or greater than 0,1 %.

#### 3.4. The classification of the above substances

#### 3.5. The name and the Registration number


7. The following substances which occur in nature, if they are not chemically modified: Minerals, ores, ore concentrates, raw and processed natural gas, crude oil, coal.

Minerals – fluorite.

#### 3.6. Chemical nature

- Minerals – fluorite.

### 4. FIRST AID MEASURES

#### 4.1. Immediate medical attention

Hazard is principally that of a nuisance dust. Coughing or shortness of breath may occur in cases of excessive inhalation.

#### 4.2. Inhalation

If inhaled, remove from exposure and provide plenty of fresh air. Get medical attention for any breathing difficulty.

#### 4.3. Skin Contact

Wash with soap and fresh water.
4.4. Eye Contact
Flush immediately with large amounts of water at least 10 min. as a precautionary measure, lifting upper and lower eyelids occasionally. Get medical aid if irritation persists.

4.5. Ingestion
Do not induce vomiting. Rinse mouth out. Take to a physician for medical treatment.

4.6. General information’s
Administration of calcium disodium EDTA may be useful in acute poisoning with its use at the discretion of qualified medical personnel.

5. FIRE-FIGHTING MEASURES

General information’s
Non-flammable, non-combustible. Product will not burn.

5.1. Suitable extinguishing media
Use media appropriate for surrounding fire.

5.2. Extinguishing media which shall not be used for safety reasons
None.

5.3. Special exposure hazards arising from the substance or preparation itself
At temperature above 1500 °C creates F2.

5.4. Special protective equipment for fire-fighters.
Firefighters should wear a NIOSH approved full-face piece self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout or bunker gear.
If in contact with strong acids or steam under fire conditions, calcium fluoride may yield highly irritating fumes of hydrogen fluoride.

5.5. Unusual Hazards
When heated to decomposition, CaF(2) emits toxic fumes of F.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions:
At possibilities dusting use personal protective setout. Avoid dust formation. In case of exposure to dust over regulatory limits, wear a personal respirator in compliance with national legislation.

6.2. Environmental precautions:
No special requirements.

6.3. Clean-up methods:
Isolate hazard area and deny entry to unauthorized and/or unprotected personnel. Do not walk though or otherwise scatter spilled material. For small spills, clean with a vacuum with a filtration system sufficient to remove and prevent recirculation of crystalline silica (a vacuum equipped with a high-efficiency particulate air (HEPA) filter is recommended). For large spills, use a fine spray or mist to control dust creation and carefully scoop or shovel into clean dry container for later reuse or disposal. DO NOT USE DRY SWEEPING OR COMpressed AIR TO CLEAN SPILLS. Appropriate protective equipment including respiratory protection is essential for all clean-up personnel.

6.4. Next data
None.

7. HANDLING AND STORAGE

7.1. Handling
Specify precautions for safe handling. Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. In case of insufficient ventilation, wear suitable respiratory equipment. Preferable work out fluorite flour through wet processor or with machines working under vacuum system. Your supplier can advise you on safe handling, please contact him.

Use only in well-ventilated areas.
Avoid skin and eye contact.
When using do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.

Advice on technical measures.
Ensure adequate ventilation, especially in confined areas.
Extraction is necessary to remove fumes evolved during reflow.
Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.
Fulfill exposure limits: common bottoms up-positional limit for the rest dust CZECH: 10,0mg/m³.

7.2. Storage.
Specify the conditions for safe storage. Ensure trapping of dust produced during the loading of silos. Keep containers closed and store the bagged products in a way preventing accidental bursting. Product is not hygroscopic.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

Exposure limits: common bottom-ups positional limit for the rest dust
CZECH: 10,0mg/m³. Respect regulatory for dust (total dust and respirable
crystalline silica dust). OEL – Occupational Exposure Limits for respirable
dust in the workplace is various in other countries.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium fluoride</td>
<td>2.5 mg/m³ TWA (as F) (listed under Fluorides)</td>
<td>2.5 mg/m³ TWA (inorganic solids, as F) (listed under Fluorides, inorganic)</td>
<td>2.5 mg/m³ TWA (as F) (listed under Fluorides)</td>
</tr>
</tbody>
</table>

Exposure limit values valid for foreign countries

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value; Mine Safety and Health Administration (MSHA) STANDARD - air</td>
<td>time-weighted average 2.5 mg(F)/m³</td>
</tr>
<tr>
<td>Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (General Industry)</td>
<td>time-weighted average 2.5 mg(F)/m³</td>
</tr>
<tr>
<td>Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (Construction)</td>
<td>8 hour time-weighted average 2.5 mg(F)/m³</td>
</tr>
<tr>
<td>Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (Shipyards)</td>
<td>8 hour time-weighted average 2.5 mg(F)/m³</td>
</tr>
<tr>
<td>Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (Federal Contractors)</td>
<td>8 hour time-weighted average 2.5 mg(F)/m³</td>
</tr>
<tr>
<td>Occupational Exposure Limit - AUSTRALIA</td>
<td>time-weighted average 2.5 mg(F)/m³, JAN1993</td>
</tr>
<tr>
<td>Occupational Exposure Limit - AUSTRIA</td>
<td>MAK 2.5 mg(F)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - BELGIUM</td>
<td>time-weighted average 2.5 mg(F)/m³, JAN1993</td>
</tr>
<tr>
<td>Occupational Exposure Limit - FINLAND</td>
<td>time-weighted average 2.5 mg(F)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - FRANCE</td>
<td>VME 2.5 mg(F)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - GERMANY</td>
<td>MAK 2.5 mg(F)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - HUNGARY</td>
<td>time-weighted average 1 mg(F)/m³, short term exposure limit 2 mg(F)/m³, JAN1993</td>
</tr>
<tr>
<td>Occupational Exposure Limit - NORWAY</td>
<td>time-weighted average 0.6 mg(F)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - THE PHILIPPINES</td>
<td>time-weighted average 2.5 mg(F)/m³, JAN1993</td>
</tr>
<tr>
<td>Occupational Exposure Limit - POLAND</td>
<td>MAC(time-weighted average) 1 mg(HF)/m³, MAC(short term exposure limit) 3 mg(HF)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - RUSSIA</td>
<td>time-weighted average 0.5 mg/m³, short term exposure limit 2.5 mg/m³, JUN2003</td>
</tr>
<tr>
<td>Occupational Exposure Limit - SWEDEN</td>
<td>NGV 2 mg(F)/m³, JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - SWITZERLAND</td>
<td>MAK- week 1.8 ppm (1.5 mg(F)/m³), KZG- week 3.6 ppm (3.0 mg(F)/m³), JAN1999</td>
</tr>
<tr>
<td>Occupational Exposure Limit - THAILAND</td>
<td>time-weighted average 2.5 mg(F)/m³, JAN1993</td>
</tr>
<tr>
<td>Occupational Exposure Limit - UNITED KINGDOM</td>
<td>time-weighted average 2.5 mg(F)/m³, SEP2000</td>
</tr>
<tr>
<td>Occupational Exposure Limit - UNITED KINGDOM</td>
<td>LTE 2.5 mg(F)/m³, JAN1993</td>
</tr>
<tr>
<td>Occupational Exposure Limit IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA</td>
<td>American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value;</td>
</tr>
</tbody>
</table>
Material safety data sheet

According to Annex II of EC Regulation No.
1907/2006 concerning REACH

Occupational Exposure Limit IN NEW
ZEALAND, SINGAPORE, VIETNAM

Not classifiable as a human carcinogen

American Conference of Governmental Industrial Hygienists (ACGIH)

Threshold Limit Value

Not classifiable as a human carcinogen

8.2. Exposure controls

8.2.1. Occupational exposure controls

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Appropriate work processes

Restraint exposition: Ensure sufficient ventilation. At work no-smoke. Do not such activities, that can lead to lofty and swirl dusty, fine seeding.

Application of collective protection measures at source, such as adequate ventilation and appropriate organizational measures

Extraction is necessary to remove fumes evolved during reflow.

8.2.1.1 Individual protection measures

Respiratory protection

Respirator at rise dust at pickling with products. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hand protection

Utility gloves.

Eye protection

None. Only at very dusty environment it can be use protective safety glasses.

Skin protection

Fit overall and footwear.

8.2.2 Environmental exposure controls

None. Fluorite is substances which occur in nature; minerals.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information

Appearance

Form (at 20 oC, norm, pressure): Solid

Colors

White, yellowish, grayish brownish, powder

Odor

Odorless

9.2. Important health, safety and environmental information

pH value 20 °C

NA. Solid - insoluble in waters

Density (at 20 °C)

3,176-3,180 (water = 1)

Solubility (at 20 °C)

Very slightly .0016g/100ml

Solubility (at 20 oC ) In oil (inclusive specifications oil)

Isn't fixed term

Explosive properties

None.

Oxidising properties

None.

Vapour pressure

not applicable

Evaporation rate

not applicable

Viscosity

not applicable

Partition coefficient: n-octanol/water

Isn't fixed term

9.3. Other information

Temperature (melting) (°C)

1403°C

Temperature (boiling) (°C)

2593°C

Flash-point (°C)

unstipulated

Auto-ignition temperature

unstipulated

10. STABILITY AND REACTIVITY

10.1. Conditions to avoid

Stability

Stable under ordinary conditions of use and storage.

Dangerous reaction

With strong inorganic acid

10.2. Materials to avoid

Materials

Strong inorganic acid
 Type of dangerous reaction
10.3. Hazardous decomposition products
Reacts with hot concentrated sulfuric acid to liberate hydrogen fluoride.

Type of dangerous substances liberated during reaction
hydrogen fluoride – strong acid
Thermal decomposition – fluoride.

Need for and the presence of stabilizers
Has not been reported

Possibility of a hazardous exothermic reaction
Has not been reported

Hazardous decomposition products, if any, formed upon contact with water
Has not been reported

Possibility of degradation to unstable products
Has not been reported under ordinary conditions

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Acute toxicity
Nontoxic.

ORL-RAT LD50
4250 mg kg⁻¹

IPR-RAT LD50
> 1500 mg kg⁻¹

IPR-MUS LD50
> 2638 mg kg⁻¹

Chronic toxicity

Epidemiology
Teratogenicity
No information found

Reproductive Effects
No information found

Mutagenicity
No information found

Neurotoxicity
No information found

Sub chronic - chronic toxicity
Not known

Sensitization
Not known

Toxicity for reproduction
Not known

Carcinogenicity
Not listed by ACGIH, IARC, NTP, or CA Prop 65.

ROUTE/ORGANISM
DOSE
EFFECT
intraperitoneal mouse
lowest published toxic dose: 3,200 mg/kg (9 day pregnant)
Reproductive: Effects on fertility; Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants)
Reproductive: Other developmental abnormalities

intraperitoneal mouse
lowest published toxic dose: 67,200 mg/kg (1-21 day pregnant)

ROUTE/ORGANISM
DOSE
EFFECT
intraperitoneal mammal (species unspecified)
lethal dose : >10 gm/kg
N/R

intraperitoneal mouse
lethal dose (50 percent kill): 2,638 mg/kg
N/R

intraperitoneal rat
lethal dose (50 percent kill): >1,500 mg/kg
N/R

oral guinea pig
lowest published lethal dose: >5 gm/kg
N/R

oral rat
lethal dose (50 percent kill): 4,250 mg/kg
Behavioral: Somnolence (general depressed activity)
Behavioral: Ataxia
Lung, Thorax, or Respiration: Respiratory depression
N/R

oral rat
lethal dose (50 percent kill): 4,417 mg/kg

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity
 aquatic toxicity, both acute and chronic
Not known
chronic for fish, crustaceans, algae and other aquatic plants.
LC$_{50}$: 96 throw. Fish (mg.kg-1) Not known
EC$_{50}$: 48 throw. Daphnia (mg.kg-1) Not known
IC$_{50}$: 72 throw. Seaweed (mg.kg-1) Not known
CHSK: Not known
BSK: Not known
12.2. Mobility
Distribution to environmental compartments absorption/desorption Insoluble in waters
12.3. Persistence and degradability
Degradation half lives Substance is not degradable
Degradation in sewage treatment plants Insoluble in waters. Substance is not degradable
12.4. Bioaccumulative potential
Accumulation in water Insoluble in waters
bioconcentration factor (BCF) Substance is not bioaccumulative
12.5. Results of PBT assessment
No data available on the product itself
12.6. Other adverse effects
No data available on the product itself

13. DISPOSAL CONSIDERATIONS

13.1. Description of these residues and information on their safe handling
Waste from residues: Dinky quantity is possible remove like other waste: Earth and stone. More take away to producer on overwork. Can be land filled in compliance with local regulations. Packaging – In all cases dust formation from residues in the packaging should be avoided and suitable worker protection be assured. Use sealed receptacles / stores rooms

13.2. Disposal of the substance
Waste code – 01 03 08 Waste code

13.3. Disposal of any contaminated packaging
Legal regulations about waste
Waste code – 15 01 10, other wastes 15 01 01 – paper packaging, 15 01 02 plastic packaging.
Law No. 185/2001 Sb., as amended
Waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

General information
No special data according to ADR.
Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

15. REGULATORY INFORMATION

Health, safety and environmental information shown on the label according to Directives 67/548/EEC and 1999/45/EC.
Information shown on the label
None.
Hazard symbol
None
Hazardous substances
Are not
R-sentences (entire wording)
None
S phrase recommended
Don't breath dust
S 22
Avoid contact with skin and eyes.
S 24/25
In case of contact with eyes, rinse immediately with plenty of water and seek medical advise
S 26

16. Other information

List of relevant R phrases.
- Training advice
Yearly.
Recommended restrictions on use
-
This Safety data sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

This MSDS has been prepared according to the hazard criteria of the Controlled Products. Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall producer be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if producer has been advised of the possibility of such damages.

ACGIH American Conference of Governmental Industrial Hygienists
AICS Australian Inventory of Chemical Substances
CAS Chemical Abstract Services
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CFR Code of Federal Regulations
CPR Cardio-pulmonary Resuscitation
DOT Department of Transportation
DSL Domestic Substances List (Canada)
EINECS European Inventory of Existing Commercial Chemical Substances
ENCJ Japan - Existing and New Chemical Substances
EWC European Waste Catalogue
EPA Environmental Protective Agency
IARC International Agency for Research on Cancer
LC Lethal Concentration
LD Lethal Dose
MAK Maximum Workplace Concentration (Germany) “maximale Arbeitsplatz-Konzentration”
NDSDL Non-Domestic Substances List (Canada)
NIOSH National Institute for Occupational Safety and Health
NTP National Toxicology Program
OSHA Occupational Safety and Health Administration
PIN Product Identification Number
RCRA Resource Conservation and Recovery Act
SARA Superfund Amendments and Reauthorization Act
STEL Short Term Exposure Limit
TCLP Toxic Chemicals Leachate Program
TDG Transportation of Dangerous Goods
TLV Threshold Limit Value
TSCA Toxic Substances Control Act
TWA Time Weighted Average