

LTS RESEARCH LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET
CESIUM FLUORIDE

GENERAL

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.

COMPANY'S STREET: 37 RAMLAND ROAD
COMPANY'S CITY: ORANGEBURG
COMPANY'S STATE: NEW YORK
COMPANY'S ZIP CODE: 10962
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COMPANY'S EMERGENCY TEL. #: 800-424-9300 (LOCAL)
703-527-3887 (INTERNATIONAL)
COMPANY'S TEL #: 845-494-2940
DATE MSDS PREPARED: 12/22/00
DATE MSDS REVISED: 11/05/12

1. HAZARDOUS INGREDIENTS/IDENTIFICATION

COMMON CHEMICAL NAME: CESIUM FLUORIDE, CESIUM MONOFLUORIDE
CHEMICAL FORMULA: CsF
NIOSH (RTECS) NO: FK6125000
CAS NUMBER: 13400-13-0
OSHA PEL: 2.5 MG/M3 (F)
ACGIH TLV: 2.5 MG/M3 (F)
OTHER RECOMMENDED LIMIT: N/K
HAZARD DESCRIPTION: T TOXIC
INFORMATION PERTAINING TO PARTICULAR DANGERS FOR MAN AND ENVIRONMENT: R 25 TOXIC IF SWALLOWED
R 36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

HMIS RATINGS:

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| HEALTH: | 2 |
| FIRE: | 0 |
| REACTIVITY: | 1 |

2. PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: COLORLESS CRYSTALS, ODORLESS
BOILING POINT: 4172F, 2300C
MELTING POINT: 683 °C
VAPOR PRESSURE (MM HG/70 F): NOT DETERMINED
VAPOR DENSITY (AIR=1): 1251 DEG C @ 760.00MMHG SPECIFIC GRAVITY
DECOMPOSITION TEMPERATURE: NOT DETERMINED
EVAPORATION RATE AND REF: NOT DETERMINED
SOLUBILITY IN WATER: HIGHLY SOLUBLE
SPECIFIC GRAVITY/DENSITY: 4.1150 G/CC
MOLECULAR FORMULA: CsF
MOLECULAR WEIGHT: 151.90
PERCENT VOLATILES BY VOLUME: N/A
CORROSION RATE (IPY): NOT DETERMINED

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A
FLASH POINT METHOD: N/A
LOWER EXPLOSIVE LIMIT: N/A
UPPER EXPLOSIVE LIMIT: N/A

EXTINGUISHING MEDIA: IF MATERIAL IS INVOLVED IN FIRE, USE WATER, CARBON DIOXIDE, DRY CHEMICAL EXTINGUISHING AGENTS, DRY SAND/DRY GROUND DOLOMITE.

SPECIAL FIRE FIGHTING PROC: USE NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N). IF WITHOUT RISK REMOVE MATERIAL FROM FIRE AREA.

UNUSUAL FIRE AND EXPL HAZRDS: MATERIAL WILL EMIT TOXIC FUMES IF HEATED TO DECOMPOSITION OR IF IN CONTACT W/STRONG ACIDS.

4. REACTIVITY DATA

STABILITY: STABLE UNDER NORMAL TEMPERATURES AND PRESSURES. REACTS VIOLENTLY WITH BENZENE DIAZONIUM FLUOROBORATE

CONDITION TO AVOID (STABILITY): HEATING TO DECOMPOSITION

MATERIALS TO AVOID: STRONG ACIDS

HAZARDOUS DECOMP. PRODUCTS: HYDROGEN FLUORIDE & OTHER TOXIC FUMES.

HAZARDOUS POLY OCCUR: NO

CONDITIONS TO AVOID (POLY): NOT RELEVANT

5. HEALTH HAZARD DATA

LD50-LC50 MIXTURE: NONE SPECIFIED

ROUTE OF ENTRY - INHALATION: YES

ROUTE OF ENTRY - SKIN: YES

ROUTE OF ENTRY - INGESTION: YES

HEALTH HAZ ACUTE AND CHRONIC: IRRITATION OF EYES, SKIN & RESPIRATORY TRACT. ACUTE: NAUSEA, ABDOMINAL PAIN, DIARRHEA, EXCESS SALIVATION, AND THIRST & SWEAT. CHRONIC: STIFFENING OF SPINE, DERMATITIS.

CARCINOGENICITY - NTP: NO

CARCINOGENICITY - IARC: NO

CARCINOGENICITY - OSHA: NO

EXPLANATION CARCINOGENICITY: NOT RELEVANT

SIGNS/SYMPTOMS OF OVEREXP: SEE HEALTH HAZARDS.

MED COND AGGRAVATED BY EXP: NONE SPECIFIED

EMERGENCY/FIRST AID PROC: REMOVE FROM EXPOSURE.

EYES: FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 20 MINUTES.

SKIN: REMOVE ANY CONTAMINATED CLOTHING. FLOOD SKIN WITH LARGE VOLUMES OF WATER FOR 15 MINUTES.

INGESTION: SEEK PROMPT, COMPETENT MEDICAL ATTENTION.

INHALATION: SEEK PROMPT, MEDICAL ATTENTION.

6. PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS IF MATL RELEASED/SPILL: WEARING FULL PROTECTIVE CLOTHING & NIOSH/MSHA APPROVED RESPIRATORS, ELIMINATE ALL SOURCES OF IGNITION. COVER SPILL W/DRY SAND OR DRY VERMICULITE, MIX WELL & CAREFULLY TRANSFERS TO WELL-MARKED CONTAINER. CLOSE CONTAINER TIGHTLY. SUBMIT OR RETAIN FOR DISPOSAL.

NEUTRALIZING AGENT: NONE SPECIFIED

WASTE DISPOSAL METHOD: CONSULT STATE, LOCAL & FEDERAL REGULATIONS FOR PROPER DISPOSAL OF RARE EARTH METAL FLUORIDES.

PRECAUTIONS-HANDLING/STORING: KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED AREA.

OTHER PRECAUTIONS: WARNING: TOXIC. AVOID CONTACT W/SKIN & EYES. DO NOT SWALLOW OR INHALE. USE ONLY W/ADEQUATE VENTILATION. KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE.

7. CONTROL MEASURES

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| RESPIRATORY PROTECTION: | NIOSH/MSHA APPROVED RESPIRATOR FOR HAZARDOUS DUSTS & ACID GASES OR NIOSH/MSHA APPROVED SELF CONTAINED BREATHING APPARATUS. |
| VENTILATION: | USE LOCAL EXHAUST. FUME HOOD. |
| PROTECTIVE GLOVES: | RUBBER GLOVES. |
| EYE PROTECTION: | ANSI APPROVED FACE SHIELD AND (SUP DATA) |
| OTHER PROTECTIVE EQUIPMENT: | LAB COAT & APRON, FLAME & CHEM RESISTANT COVERALLS, EYEWASH CAPABLE OF SUSTAINED FLUSHING, SAFETY DRENCH (SUP DATA) |
| WORK HYGIENIC PRACTICES: | WASH THOROUGHLY AFTER HANDLING |
| SUPL. SAFETY & HEALTH DATA: | |
| OTHER PROT EQUIP: | SHOWER, BOTH OF WHICH MEET ANSI DESIGN MAINTENANCE & HYGIENIC FACILITIES FOR WASHING. |
| EYE PROTECTION: | CHEMICAL SPLASH GOGGLES (FP N). |

8. TRANSPORTATION DATA

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| US DOT | TOXIC SOLID, INORGANIC, N.O.S. (CESIUM FLUORIDE) |
| HAZ CLASS | 6.1 |
| UN NUMBER: | UN3288 |
| PACKING GROUP: | III |
| RAIL/ROAD (RID/ADR): | 6.1 |
| MARITIME TRANSPORT (IMO/MDG): | 6.1 |
| AIR TRANSPORT (ICAO-IATA): | 6.1 |

9. REGULATIONS

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| HAZARD SYMBOLS: | T TOXIC |
| RISK PHRASES: | 25 TOXIC IF SWALLOWED. 36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN. |
| SAFETY PHRASES: | 20 WHEN USING DO NOT EAT OR DRINK. 26 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. 36/37 WEAR SUITABLE PROTECTIVE CLOTHING AND GLOVES. 45 IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL. SEEK MEDICAL ADVICE IMMEDIATELY. 60 THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF AS HAZARDOUS WASTE. |

10. OTHER INFORMATION

THIS SAFETY DATA SHEET SHOULD BE USED IN CONJUNCTION WITH TECHNICAL SHEETS. IT DOES NOT REPLACE THEM. THE INFORMATION GIVEN IS BASED ON OUR KNOWLEDGE OF THIS PRODUCT, AT THE TIME OF PUBLICATION. IT IS GIVEN IN GOOD FAITH. THE ATTENTION OF THE USER IS DRAWN TO THE POSSIBLE RISKS INCURRED BY USING THE PRODUCT FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT WAS INTENDED. THIS DOES NOT IN ANY WAY EXCUSE THE USER FROM KNOWING AND APPLYING ALL THE REGULATIONS GOVERNING HIS ACTIVITY. IT IS THE SOLE RESPONSIBILITY OF THE USER TO TAKE ALL PRECAUTIONS REQUIRED IN HANDLING THE PRODUCT. THE AIM OF THE MANDATORY REGULATIONS MENTIONED IS TO HELP THE USER TO FULFILL HIS OBLIGATIONS REGARDING THE USE OF HAZARDOUS PRODUCTS.