MATERIAL SAFETY DATA SHEET

SECTION 1. --- ------------------------------------------------- - - - - - - - - - - - - - - - - - - -
CATALOG #: 378828
NAME: LITHIUM FLUORIDE, RANDOM CRYSTALS, OPTICAL GRADE

SECTION 2. --- --------------------------------------------------- - - - - - - - - - - - - - - - - - -
CAS #: 7789-24-4
MF: FLI
EC NO: 232-152-0
SYNONYMS
TLD 100 * LITHIUM FLUORURE (FRENCH) *

SECTION 3. --- --------------------------------------------------- - - - - - - - - - - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
TOXIC
MAY CAUSE HARM TO THE UNBORN CHILD.
MAY CAUSE HARM TO BREASTFED BABIES.
POSSIBLE RISK OF IMPAIRED FERTILITY.
TOXIC IF SWALLOWED.
CAUSES SEVERE IRRITATION.
TARGET ORGAN(S):
CENTRAL NERVOUS SYSTEM
KIDNEYS
AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.
DO NOT BREATHE DUST.
HYGROSCOPIC
KEEP TIGHTLY CLOSED.

SECTION 4. --- --------------------------------------------------- - - - - - - - - - - - - - - - - - -
SYMPTOMS MAY BE DELAYED UP TO 24 HOURS DEPENDING UPON THE FLUORIDE ION CONCENTRATION. PREVENTION OF ABSORPTION OF THE FLUORIDE ION IN CASES OF INGESTION CAN BE OBTAINED BY GIVING MILK, CHEWABLE CALCIUM CARBONATE TABLETS OR MILK OF MAGNESIA TO CONSCIOUS VICTIMS. CONDITIONS SUCH AS HYPOCALCEMIA, HYPOMAGNESEMIA AND CARDIAC ARRHYTHMIAS SHOULD BE MONITORED FOR, SINCE THEY CAN OCCUR AFTER EXPOSURE.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS WITH FINGERS.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. --- --------------------------------------------------- - - - - - - - - - - - - - - - - - -

http://infonew.sigma-aldrich.com/cgi-bin/gx.cgi/Applogic+MSDSInfo.ReturnMSDS 6/17/03
EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ACCIDENTAL RELEASE MEASURES

EVACUATE AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEET UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. HANDLING AND STORAGE
REFER TO SECTION 8.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.

SAFETY SHOWER AND EYE BATH.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
APPEARANCE AND ODOR
COLORLESS CRYSTALS

SECTION 10. STABILITY AND REACTIVITY
INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
STRONG ACIDS
SENSITIVE TO MOISTURE
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

TOXIC FUMES OF:
HYDROGEN FLUORIDE
LITHIUM OXIDES

SECTION 11. TOXICOLOGICAL INFORMATION
ACUTE EFFECTS
HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.
CAUSES SEVERE IRRITATION.
HIGH CONCENTRATIONS ARE EXTREMELY DESTRUCTIVE TO TISSUES OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES AND SKIN.
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND VOMITING.
SYMPTOMS OF EXPOSURE TO INORGANIC FLUORIDES MAY INCLUDE SALIVATION, NAUSEA, VOMITING, ABDOMINAL PAIN, FEVER, AND LABORED BREATHING.
CHRONIC EFFECTS
MAY CAUSE CONGENITAL MALFORMATION IN THE FETUS.
MAY CAUSE REPRODUCTIVE DISORDERS.
CYANOSIS AND T-WAVE INVERSION HAVE OCCURRED IN THE BREAST-FED INFANTS OF WOMEN RECEIVING LITHIUM CARBONATE THERAPY.
TARGET ORGAN(S):
CENTRAL NERVOUS SYSTEM
KIDNEYS
CARDIOVASCULAR SYSTEM
THYROID

TO THEBEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ADDITIONAL INFORMATION

LARGE DOSES OF LITHIUM ION HAVE CAUSED DIZZINESS AND PROSTRATION, AND
CAN CAUSE KIDNEY DAMAGE IF SODIUM INTAKE IS LIMITED. DEHYDRATION,
WEIGHT LOSS, DERMATOLOGICAL EFFECTS AND THYROID DISTURBANCES HAVE BEEN
REPORTED. CENTRAL NERVOUS SYSTEM EFFECTS THAT INCLUDE SLURRED SPEECH,
BLURRED VISION, SENSORY LOSS, ATAXIA AND CONVULSIONS MAY OCCUR.
DIARRHEA, VOMITING AND NEUROMUSCULAR EFFECTS SUCH AS TREMOR, CLONUS
AND HYPERACTIVE REFLEXES MAY OCCUR AS A RESULT OF REPEATED EXPOSURE TO
LITHIUM ION.

SYMPTOMS OF FLUORIDE OVEREXPOSURE MAY INCLUDE SALIVATION, NAUSEA,
VOMITING, ABDOMINAL PAIN, FEVER, LABORED BREATHING. FLUORIDE ION CAN
REDUCE SERUM CALCIUM LEVELS POSSIBLY CAUSING FATAL HYPOCALCEMIA.
PROLONGED EXPOSURE TO FLUORIDE DUSTS, VAPORS OR MISTS RESULTS IN
PERFORATION OF THE NASAL SEPTUM. CHRONIC EFFECTS INCLUDE EXCESSIVE
CALCIFICATION OF THE BONES, LIGAMENTS AND TENDONS.

CYANOSIS AND T-WAVE INVERSION HAVE OCCURRED IN THE BREAST-FED INFANTS
OF WOMEN RECEIVING LITHIUM CARBONATE THERAPY.

RTECS #: OJ6125000
LITHIUM FLUORIDE

TOXICITY DATA

ORL-RAT LD50: 143 MG/KG    FATOAO 40,329,1977
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR
COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF
THIS MATERIAL.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -
CONTACT ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - -
EUROPEAN INFORMATION

TOXIC
R 61
MAY CAUSE HARM TO THE UNBORN CHILD.
R 64
MAY CAUSE HARM TO BREASTFED BABIES.
R 62
POSSIBLE RISK OF IMPAIRED FERTILITY.
R 25
TOXIC IF SWALLOWED.
S 53
AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
S 45
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
S 36/37/39
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE
PROTECTION.
S 22
DO NOT BREATHE DUST.

TLV AND SOURCE

FOR FLUORIDES AS FLUORIDE:
ACGIH TLV-TWA: 2.5 MG/M3.
OSHA PEL: 8H TWA 2.5 MG/M3.
REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK
ACGIH TLV-TWA 2.5 MG(F)/M3  DTLVS* TLV/BEI,1999
ACGIH TLV-NOT CLASSIFIABLE AS A HUMAN CARCINOGEN  DTLVS* TLV/BEI,1999
MSHA STANDARD-AIR:TWA 2.5 MG(F)/M3
DTLVS* 3,116,1971
OSHA PEL (GEN INDU):8H TWA 2.5 MG(F)/M3
CFRGRB 29,1910.1000,1994
OSHA PEL (CONSTRUC):8H TWA 2.5 MG(F)/M3
CFRGRB 29,1926.55,1994
OSHA PEL (SHIPYARD):8H TWA 2.5 MG(F)/M3
CFRGRB 29,1915.1000,1993
OSHA PEL (FED CONT):8H TWA 2.5 MG(F)/M3
CFRGRB 41,50-204.50,1994
OEL-AUSTRALIA: TWA 2.5 MG(F)/M3, JAN1993
OEL-AUSTRIA: MAK 2.5 MG(F)/M3, JAN1999
OEL-BELGIUM: TWA 2.5 MG(F)/M3, JAN1993
OEL-FINLAND: TWA 2.5 MG(F)/M3, JAN1999
OEL-FRANCE: VME 2.5 MG(F)/M3, JAN1999
OEL-GERMANY: MAK 2.5 MG(F)/M3, JAN1999
OEL-HUNGARY: TWA 1 MG(F)/M3, STEL 2 MG(F)/M3, JAN1993
OEL-THE NETHERLANDS: MAC-K 3.5 MG(F)/M3, JAN1999
OEL-NORWAY: TWA 0.6 MG(F)/M3, JAN1999
OEL-THE PHILIPPINES: TWA 2.5 MG(F)/M3, JAN1993
OEL-POLAND: MAC(TWA) 1 MG(HF)/M3, MAC(STEL) 3 MG(HF)/M3, JAN1999
OEL-RUSSIA: STEL 0.2 PPM (1 MG/M3), JAN1993
OEL-SWEDEN: NGV 2 MG(F)/M3, JAN1999
OEL-SWITZERLAND: MAK-W 1.8 PPM (1.5 MG(F)/M3), KZG-W 3.6 PPM (3.0 MG(F)/M3), JAN1999
OEL-THAILAND: TWA 2.5 MG(F)/M3, JAN1993
OEL-TURKEY: TWA 2.5 MG(F)/M3, JAN1993
OEL-UNITED KINGDOM: TWA 2.5 MG(F)/M3, SEP2000
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO FLUORIDES, INORGANIC-AIR:10H TWA 2.5 MG(F)/M3
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD M1010; NIS 12; TNF 592; NOS 5; TNE 2853
NOES 1983: HZD M1010; NIS 17; TNF 390; NOS 11; TNE 3854; TFE 46
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

SECTION 16. --- OTHER INFORMATION---

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