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MATERIAL SAFETY DATA SHEET

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
CATALOG #: S6521
NAME: SODIUM FLUORIDE ACS REAGENT

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #: 7681-49-4
MF: FNA
EC NO: 231-667-8
SYNONYMS
ALCOA SODIUM FLUORIDE * ANTIBULIT * CAVI-TROL * CHEMIFLUOR * CREDO *
DISODIUM DIFLUORIDE * FDA 0101 * FL-TABS * FLORIDINE * FLOROCID *
FLOZENGES * FLUORAL * FLUORIDENT * FLUORIDE, SODIUM * FLUORID BODNY
(CZECH) * FLUORIGARD * FLUORINEED * FLURITAB * FLUOROCID *
* FLUOR-O-KOTE * FLUOROL * FLUORURE DE SODIUM (FRENCH) * FLURA *
* FLURA DROPS * FLURA-GEL * FLUAR-LOZ * FLURCARE * FLURSOL * FUNGOL B *
* GEL II * GLEUM * IRADICAV * KARIDUM * KARIGEL * KARI-RINSE * LEA-COV *
* LEMOFLOUR * LURIDE * LURIDE LOZI-TABS * LURIDE-SF *
* NAFFEN * NAFFAK * NA FRINSE * NAFRAK * NAFLUOR * OSSALIN *
* OSSIN * PEDIAFLOR * PEDIDENT * PENNWHITE * PERGANTENE *
* PHOS-FLUR * POINT TWO * PREDENT * RAFLOR * RESCUE SQUAD * ROACH SALT *
* SODIUM FLUORIDE CYCLIC DIMER * SODIUM FLUORURE (FRENCH) * SODIUM *
HYDROFLUORIDE * SODIUM MONOFLUORIDE * SOFLO * STAYFLO *
* STUDAFLO * SUPERDENT * T-FLUORIDE * THERA-FLUR * THERALOS *
TRISODIUM TRIFLUORIDE *

SECTION 3. - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
TOXIC
TOXIC IF SWALLOWED.
CONTACT WITH ACIDS LIBERATES VERY TOXIC GAS.
IRRITATING TO EYES AND SKIN.
TARGET ORGAN(S):
KIDNEYS
BONES
DO NOT BREATHE DUST.
WEAR SUITABLE PROTECTIVE CLOTHING.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
MOISTURE SENSITIVE

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - -
HYDROFLUORIC (HF) ACID BURNS REQUIRE IMMEDIATE AND SPECIALIZED FIRST
AID AND MEDICAL TREATMENT. SYMPTOMS MAY BE DELAYED UP TO 24 HOURS
DEPENDING ON THE CONCENTRATION OF HF. AFTER DECONTAMINATION WITH WATER,
FURTHER DAMAGE CAN OCCUR DUE TO PENETRATION/ABSORPTION OF THE FLUORIDE
ION. TREATMENT SHOULD BE DIRECTED TOWARD BINDING THE FLUORIDE ION AS
WELL AS THE EFFECTS OF EXPOSURE. SKIN EXPOSURES CAN BE TREATED WITH A
2.5% CALCIUM GLUCONATE GEL REPEATED UNTIL BURNING CEASES. MORE SERIOUS
SKIN EXPOSURES MAY REQUIRE SUBCUTANEOUS CALCIUM GLUCONATE EXCEPT FOR
DIGITAL AREAS UNLESS THE PHYSICIAN IS EXPERIENCED IN THIS TECHNIQUE,
DUE TO THE POTENTIAL FOR TISSUE INJURY FROM INCREASED PRESSURE.
ABSORPTION CAN READILY OCCUR THROUGH THE SUBUNGUAL AREAS AND SHOULD BE
CONSIDERED WHEN UNDERGOING DECONTAMINATION. 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 ARHYTHMIAS SHOULD BE MONITORED FOR, SINCE THEY CAN OCCUR AFTER EXPOSURE.

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
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 - - - - - - - - -
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
EVACUATE AREA.

SECTION 7. - - - - - - - - - HANDLING AND STORAGE - - - - - - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - - - - - EXPOSURE CONTROLS/PERSOAL PROTECTION- - - - - -
USE ONLY IN A CHEMICAL FUME HOOD.
SAFETY SHOWER AND EYE BATH.
WASH CONTAMINATED CLOTHING BEFORE REUSE.
WASH THOROUGHLY AFTER HANDLING.
DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.

SECTION 9. - - - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - -
APPEARANCE AND ODOR
CRYSTALLINE
SOLID.
PHYSICAL PROPERTIES
MELTING POINT: 993 °C
VAPOR PRESSURE: 1,4 MMHG
SPECIFIC GRAVITY: 2,558
SWISS POISON CLASS: 3

SECTION 10. - - - - - - - - STABILITY AND REACTIVITY - - - - - -
STABILITY
STABLE.
INCOMPATIBILITIES
SENSITIVE TO MOISTURE
STRONG ACIDS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
HYDROGEN FLUORIDE
SODIUM OXIDES
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - -
ACUTE EFFECTS
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
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.
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,
wheezing, laryngitis, shortness of breath, headache, nausea and
vomiting.
EXPOSURE CAN CAUSE:
STOMACH PAINS, VOMITING, DIARRHEA.
Prolonged exposure can cause:
DAMAGE TO THE LUNGS
CAUSES SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
CAUSES EYE IRRITATION.
MAY BE HARMFUL IF INHALED.
MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.
TOXIC IF SWALLOWED.
CHRONIC EFFECTS
THIS PRODUCT IS OR CONTAINS A COMPONENT THAT IS NOT CLASSIFIABLE AS
TO ITS CARCINOGENICITY BASED ON ITS IARC, ACGIH, NTP OR EPA
CLASSIFICATION.
TARGET ORGAN(S):
HEART, KIDNEYS
BONES
NERVES
G.I. SYSTEM
TEETH
DAMAGE TO THE LUNGS
RTECS #: WB0350000
SODIUM FLUORIDE
IRRITATION DATA
EYE-RBT 20 MG/24H MOD 28ZPAK -,20,1972
TOXICITY DATA
ORL-WNN LDL0:90 MG/KG JAMAAP 81,811,1923
ORL-WNN LDL0:360 MG/KG JAMAAP 100,97,1933
ORL-HMN LDL0:71 MG/KG 85KYAH 11,1361,1989
ORL-HMN LDL0:75 MG/KG PCOC**, -,1033,1966
ORL-RAT LD50:52 MG/KG NTIS** UR-3490-95
IPR-RAT LD50:22 MG/KG XEURAQ UR-154,1951
SCU-RAT LD50:175 MG/KG OYYAA2 2,411,1968
IVN-RAT LD50:26 MG/KG TXAPA9 3,278,1961
ORL-MUS LD50:57 MG/KG SHGKA3 80,1519,1980
IPR-MUS LD50:38 MG/KG IMEMDT 27,237,1982
IVN-MUS LD50:50830 MG/KG IMEMDT 27,237,1982
IVN-MKY LD50:26600 MG/KG APTO6 22,99,1965
ORL-RBT LD50:200 MG/KG JEENAI 61,751,1968
ORL-DOM LD50:100 MG/KG NEZTAF 30,199,1982
ORL-BWD LD50:110 MG/KG AEETCV 16,483,1987

TARGET ORGAN DATA
PERIPHERAL NERVE AND SENSATION (PARESTHESIA)
SENSE ORGANS AND SPECIAL SENSES (OLFACTION TUMORS)
SENSE ORGANS AND SPECIAL SENSES (PTOSIS)
SENSE ORGANS AND SPECIAL SENSES (OTHER EYE EFFECTS)
BEHAVIORAL (SOMNOLENCE)
BEHAVIORAL (TREMOR)
BEHAVIORAL (FLUID INTAKE)
BEHAVIORAL (MUSCLE WEAKNESS)
BEHAVIORAL (HEADACHE)
CARDIAC (EKG CHANGES NOT DIAGNOSTIC OF ABOVE)
LUNGS, THORAX OR RESPIRATION (CYANOSIS)
LUNGS, THORAX OR RESPIRATION (RESPIRATORY DEPRESSION)
GASTROINTESTINAL (CHANGES IN STRUCTURE OR FUNCTION OF SALIVARY GLANDS)
GASTROINTESTINAL (HYPERMOTILITY, DIARRHEA)
GASTROINTESTINAL (NAUSEA OR VOMITING)
GASTROINTESTINAL (OTHER CHANGES)
LIVER (OTHER CHANGES)
MUSCULO–SKELETAL (CHANGES IN TEETH AND SUPPORTING STRUCTURES)
MUSCULO–SKELETAL (OTHER CHANGES)
SKIN AND APPENDAGES (TUMORS)
IMMUNOLOGICAL INCLUDING ALLERGIC (INCREASED IMMUNE RESPONSE)
PATERNAL EFFECTS (SPERMATOGENESIS)
PATERNAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)
EFFECTS ON FERTILITY (FEMALE FERTILITY INDEX)
EFFECTS ON FERTILITY (MALE FERTILITY INDEX)
EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)
EFFECTS ON FERTILITY (OTHER MEASURES OF FERTILITY)
EFFECTS ON EMBRYO OR FETUS (EXTRA EMBRYONIC STRUCTURES)
EFFECTS ON EMBRYO OR FETUS (MATERNAL-FETAL EXCHANGE)
EFFECTS ON EMBRYO OR FETUS (FETAL DEATH)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CENTRAL NERVOUS SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (SKIN AND SKIN APPENDAGES)
EFFECTS ON NEWBORN (STILLBIRTH)
EFFECTS ON NEWBORN (BEHAVIORAL)
NUTRITIONAL AND GROSS METABOLIC (WEIGHT LOSS OR DECREASED WEIGHT GAIN)
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
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.
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

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

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - -
EUROPEAN INFORMATION
EC INDEX NO: 009-004-00-7
TOXIC
R 25
TOXIC IF SWALLOWED.
R 32
CONTACT WITH ACIDS LIBERATES VERY TOXIC GAS.
R 36/38
IRRITATING TO EYES AND SKIN.
S 22
DO NOT BREATHE DUST.
S 36
WEAR SUITABLE PROTECTIVE CLOTHING.
S 45
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

REVIEWS, STANDARDS, AND REGULATIONS
OEL=MAK
ACGIH TLV-TWA 2.5 MG(F)/M3
ACGIH TLV–NOT CLASSIFIABLE AS A HUMAN CARCINOGEN
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE IMEMDT 27,237,1982
IARC CANCER REVIEW: ANIMAL INADEQUATE EVIDENCE IMEMDT 27, 237, 1982
IARC CANCER REVIEW: GROUP 3 IMSUDL 7, 208, 1987
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54, 7740, 1989
MSHA STANDARD-AIR: TWA 2.5 MG(F)/M3 DTLVS* 3, 116, 1971
OSHA PEL (GEN INDU): 8H TWA 2.5 MG(F)/M3 CFRGBR 29, 1910, 1000, 1994
OSHA PEL (CONSTRUCT): 8H TWA 2.5 MG(F)/M3 CFRGBR 29, 1926, 55, 1994
OSHA PEL (SHIPYARD): 8H TWA 2.5 MG(F)/M3 CFRGBR 29, 1915, 1000, 1993
OSHA PEL (FED CONT): 8H TWA 2.5 MG(F)/M3 CFRGBR 41, 50-204, 50, 1994
OEL-AUSTRIA: TWA 2.5 MG(F)/M3, JAN1993
OEL-BELGIUM: MAK 2.5 MG(F)/M3, JAN1999
OEL-FINLAND: TWA 2.5 MG(F)/M3, JAN1999
OEL-FRANCE: VME 2 MG/M3, JAN1999
OEL-FRANCE: VME 2 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: TWA 0.2 MG/M3, STEL 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) TjETBT/PjCourier
OEL-THERLAND: 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 84425; NIS 50; TNF 3763; NOS 50; TNE 25059
NOES 1983: HZD 84425; NIS 83; TNF 3970; NOS 69; TNE 84776; TFE 26602
EPA GENETOX PROGRAM 1988, POSITIVE: D MELANOGASTER-WHOLE SEX CHROM. LOSS
EPA GENETOX PROGRAM 1988, NEGATIVE: D MELANOGASTER-NONDISJUNCTION; N CRASSA-AINEUPLOIDY
EPA GENETOX PROGRAM 1988, NEGATIVE: IN VIVO SCE-NONHUMAN; S CEREVISIAE GENE CONVERSION
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: D MELANOGASTER-PARTIAL SEX CHROM. LOSS
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: HISTIDINE REVERSION-AMES TEST
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: D MELANOGASTER SEX-LINKED LETHAL
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001
NTP CARCINOGENESIS STUDIES (ORAL); EQUIVOCAL EVIDENCE: RAT
NTPTR* NTP-TR-393, 1991
NTP CARCINOGENESIS STUDIES (ORAL); NO EVIDENCE: MOUSE
NTPTR* NTP-TR-393, 1990
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