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M A T E R I A L S A F E T Y D A T A S H E E T

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 \* F1-TABS \* FLORIDINE \* FLOROCID \*  
FLOZENGES \* FLURAL \* FLUORIDENT \* FLUORIDE, SODIUM \* FLUORID SODNY  
(CZECH) \* FLUORIGARD \* FLUORINEED \* FLUORINSE \* FLUORITAB \* FLUOROCID  
\* FLUOR-O-KOTE \* FLUOROL \* FLUORURE DE SODIUM (FRENCH) \* FLURA \*  
FLURA DROPS \* FLURA-GEL \* FLURA-LOZ \* FLURCARE \* FLURSOL \* FUNGOL B \*  
GEL II \* GELUTION \* GLEEM \* IRADICAV \* KARIDIUM \* KARIGEL \* KARI-  
RINSE \* LEA-COV \* LEMOFLUR \* LURIDE \* LURIDE LOZI-TABS \* LURIDE-SF \*  
NAFEEN \* NAFPAK \* NA FRINSE \* NATRIUM FLUORIDE \* NCI-C55221 \* NUFLUOR  
\* OSSALIN \* OSSIN \* PEDIAFLOR \* PEDIDENT \* PENNWHITE \* PERGANTENE \*  
PHOS-FLUR \* POINT TWO \* PREDENT \* RAFLUOR \* RESCUE SQUAD \* ROACH SALT  
\* SODIUM FLUORIDE CYCLIC DIMER \* SODIUM FLUORURE (FRENCH) \* SODIUM  
HYDROFLUORIDE \* SODIUM MONOFLUORIDE \* SO-FLO \* STAY-FLO \* STUDAFLUOR \*  
SUPER-DENT \* T-FLUORIDE \* THERA-FLUR \* THERA-FLUR-N \* 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 ARRHYTHMIAS 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/PERSONAL PROTECTION- - - - -

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-WMN LDLO:90 MG/KG

JAMAAP 81,811,1923

ORL-WMN LDLO:360 MG/KG

JAMAAP 100,97,1933

ORL-HMN LDLO:71 MG/KG

85KYAH 11,1361,1989

ORL-HMN LDLO: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

SCU-MUS LD50:115 UG/KG

NYKZAU

68(3),55P-74P,1972

IVN-MUS LD50:50830 UG/KG

IMEMDT 27,237,1982

IVN-MKY LD50:26600 UG/KG

APTOA6 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

AECTCV 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)  
KIDNEY, URETER, BLADDER (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)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)  
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

DTLVS\* TLV/BEI,1999

ACGIH TLV-NOT CLASSIFIABLE AS A HUMAN CARCINOGEN DTLVS\* TLV/BEI,1999

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 (CONSTRUC):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-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 MG/M3, JAN1993  
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

