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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 #: 318930  
 NAME: FLUORIDE, VOLUMETRIC STANDARD, SOLUTION  
 IN WATER

## 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 \* FLUORAL \* 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 \* NAFFAK \* 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

CAUTION:  
 AVOID CONTACT AND INHALATION.

## 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- - - - -

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

CLEAR COLORLESS LIQUID

PHYSICAL PROPERTIES

FLASHPOINT NONE

SPECIFIC GRAVITY: 1.005

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-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 ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

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

EC INDEX NO: 009-004-00-7

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  
 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  
 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 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-ANEUPLOIDY  
 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

SECTION 16. - - - - - OTHER INFORMATION- - - - -  
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