

ORION MATERIAL SAFETY DATA SHEET

ORION RESEARCH INCORPORATED
THE SCHRAFFT CENTER
529 MAIN STREET, BOSTON, MA 02129 USA
TELEPHONE 617-242-3900

I. PRODUCT IDENTIFICATION

PRODUCT NAME: ORION APPLICATION SOLUTION - FLUORIDE STANDARD

CATALOG NO.: 940906 AND 940907

EFFECTIVE DATE: 7/21/91

HAZARDOUS SHIPMENT LABELING: DOT: NONE
IATA: NONE
TESTING PER NACE (TM-01-69) SHOWED THIS PRODUCT
TO BE NON-CORROSIVE.

PREPARED BY: THOMAS F. FLYNN TITLE: QUALITY ASSURANCE CHEMIST
APPROVED BY: LYNN ORLOURY TITLE: DIRECTOR REGULATORY MATTERS

II. HAZARDOUS INGREDIENTS (IDENTIFY INFORMATION)

HAZARDOUS COMPONENTS* CAS NO. % OSHA ACGIH LD
SPECIFIC CHEMICAL IDENTITY: PEL TLV L0 MG/KG
COMMON NAMES
SODIUM FLUORIDE (NAF) 7681-49-4 <1.0 NONE NONE 75 (ORL-HUMN)
DEIONIZED WATER (H2O)** 7732-18-5 >99.0 NA NA 629,000 (ORL-DOG)

III. PHYSICAL DATA

BOILING POINT 750 MM HG: 100 C
SPECIFIC GRAVITY (H2O=1): 1.0
PH @ 25 C: 5.5-7.5
VOLATILES, % BY WT.: NA
VAPOR DENSITY (AIR=1): NA
APPEARANCE AND ODOR: CLEAR, COLORLESS, ODORLESS SOLUTION
FREEZING POINT: 0 C
VAPOR PRESSURE @: NA
SOLUBILITY IN WATER, % BY WT @: MISCIBLE
EVAPORATION RATE (BUTYL ACETATE=1): NA

* CHEMICALS WHICH ARE NOT CLASSIFIED AS HAZARDOUS PER U.S. OSHA GUIDELINES
(29CFR PARTS 1915.2 OR 1916.2) OR THE MASSACHUSETTS SUBSTANCE LIST
(105CMR670.000 APPENDIX A) WILL NOT NECESSARILY BE LISTED ON THIS FORM EVEN
THOUGH ONE OR MORE MAY BE A CONSTITUENT OF THIS PRODUCT.

*NA = NOT AVAILABLE OR NOT APPLICABLE
** = NON-HAZARDOUS COMPONENT

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IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD): NA
AUTOIGNITION TEMPERATURE: NA

FLAMMABLE LIMITS IN AIR, % BY VOLUME: LOWER: NA UPPER: NA

EXTINGUISHING MEDIA: ANY
SPECIAL FIRE-FIGHTING PROCEDURES: NONE, THIS PRODUCT IS NON-FLAMMABLE.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

V. REACTIVITY DATA

STABILITY: UNSTABLE
 STABLE X
CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID): PERCHLORATES (HClO4)

HAZARDOUS DECOMPOSITION PRODUCTS: TOXIC FUMES IF HEATED TO DECOMPOSITION.

HAZARDOUS POLYMERIZATION: MAY OCCUR
 WILL NOT OCCUR X
CONDITIONS TO AVOID: NONE

VI. HEALTH HAZARD DATA

ROUTE(S) OF ENTRY: INHALATION? NO. SKIN? NO. INGESTION? YES.

HEALTH HAZARDS (ACUTE AND CHRONIC):
BECAUSE OF THE LOW CONCENTRATION OF SALT (LESS THAN 1%), THIS PRODUCT DOES NOT
POSE A SERIOUS ACUTE OR CHRONIC HAZARD VIA SKIN OR INHALATION ROUTES.
INGESTION: IN LARGE DOSES (25-50 MG) MAY CAUSE NAUSEA, VOMITING, DIARRHEA AND
CNS MANIFESTATION.

CARCINOGENICITY:
NTP? NO. IARC MONOGRAPHS? (ANIMAL INDEFINITE). OSHA REGULATED? NO.

SIGNS AND SYMPTOMS OF EXPOSURE: NAUSEA, WEAKNESS, CRAMP-LIKE PAINS.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: ANOREXIA, ANEMIA, ASTHMA,
BONE DISEASE.

EMERGENCY AND FIRST AID PROCEDURES:
SKIN AND EYES: FLUSH WITH LARGE AMOUNTS OF WATER.
INTERNAL: CONSULT PHYSICIAN.

VII. PRECAUTIONS (SAFE HANDLING AND USE)

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: CLEAN UP AND SET
ASIDE FOR WASTE DISPOSAL.

WASTE DISPOSAL METHOD: CONSULT ALL FEDERAL, STATE, AND LOCAL LAWS FOR PROPER
DISPOSAL PRACTICES.

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: SUITABLE FOR ALL GENERAL
STORAGE.
NFPA RATING: SCALE (0-4): HEALTH - 1, FIRE - 0, REACTIVITY - 0, SPECIFIC -
NONE.

OTHER PRECAUTIONS:
SARA TITLE III: NOT FOUND ON SARA 313 OR CAL. PROP. 65 LISTING. NAF IS A
CERCLA HAZARD RQ = 1000#. REPORTED IN EPA TSCA INVENTORY.

VIII. CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE): NO

VENTILATION:
LOCAL EXHAUST: NO
MECHANICAL (GENERAL): NO
SPECIAL: NO
OTHER: NO

PROTECTIVE GLOVES: YES - VINYL OR RUBBER
EYE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NA

WORK/HYGIENIC PRACTICES: NO EATING OR DRINKING WHILE WORKING WITH THIS
PRODUCT.

LIABILITY IS EXPRESSLY DISCLAIMED FOR ANY LOSS OR INJURY ARISING OUT OF THE USE
OF THIS INFORMATION OR THE USE OF ANY MATERIALS DESIGNATED. SAFE USE OF THE
MATERIALS IS THE RESPONSIBILITY OF THE USER.

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CATALOG NUMBER: 940907

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I. PRODUCT IDENTIFICATION

PRODUCT NAME: ORION APPLICATION SOLUTION - FLUORIDE STANDARD

EFFECTIVE DATE: 07/21/91

HAZAROUS SHIPMENT LABELING (DOT/IATA):

TESTING PER NACE (TM-01-69) SHOWED THIS PRODUCT TO BE NON-CORROSIVE.

II. HAZARDOUS INGREDIENTS (IDENTIFY INFORMATION)

| HAZARDOUS COMPONENTS* | CAS# | % | OSHA PEL | ACGIH TLV | LD (LOMG/KG) |
|-------------------------|-----------|-------|----------|-----------|----------------------|
| SODIUM FLUORIDE (NAF) | 7681-49-4 | <1.0 | NONE | NONE | 75 (ORL-HMN) |
| **DEIONIZED WATER (H2O) | 7732-18-5 | >99.0 | NONE | NONE | 629,000 (ORL-DOG) |

III. PHYSICAL DATA

BOILING POINT(750MMHG): 100 C
SPECIFIC GRAVITY(H2O=1): 1.0
PH @ 25 C: (5.5 - 7.5)
VOLATILES, % BY WT: NA
VAPOR DENSITY(AIR=1): NA
APPEARANCE AND ODOR: CLEAR, COLORLESS, ODORLESS SOLUTION.

FREEZING POINT: 0 C
VAPOR PRESSURE: NA*
SOLUBILITY IN H2O, % BY WT: MISCIBLE
EVAPORATION RATE(BUAC=1): NA

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD): NA
AUTOIGNITION TEMPERATURE: NA
FLAMMABLE LIMITS IN AIR, % BY VOLUME: LEL: NA UEL: NA
EXTINGUISHING MEDIA: ANY.

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(SECTION IV. CONTINUED...)

SPECIAL FIRE-FIGHTING PROCEDURES: NONE, THIS PRODUCT IS NON-FLAMMABLE.

UNUSUAL FIRE & EXPLOSION HAZARDS: NONE.

V. REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: NONE.

INCOMPATIBILITY (MATERIALS TO AVOID): PERCHLORATES (HClO₄)

HAZARDOUS DECOMPOSITION PRODUCTS: TOXIC FUMES IF HEATED TO DECOMPOSITION.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.
CONDITION TO AVOID: NONE.

VI. HEALTH HAZARD DATA

ROUTE(S) OF ENTRY: INGESTION.

HEALTH HAZARDS (ACUTE & CHRONIC):
BECAUSE OF LOW CONCENTRATION OF SALT (LESS THAN 1%), THIS PRODUCT DOES NOT POSE
A SERIOUS ACUTE OR CHRONIC HAZARD VIA SKIN OR INHALATION ROUTES.
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WASTE DISPOSAL METHOD: CONSULT ALL FEDERAL, STATE, AND LOCAL LAWS FOR PROPER
DISPOSAL PRACTICES.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: SUITABLE FOR GENERAL STORAGE.
NFPA RATING: SCALE (0-4);
HEALTH - 2, FIRE - 1, REACTIVITY - 0, SPECIFIC - NONE.

OTHER PRECAUTIONS:

SARA TITLE III: NOT FOUND ON SARA 313 OR CAL. PROP 65 LISTING. NAF IS A CERCLA
HAZARD RQ =1000 LBS. REPORTED IN EPA TSCA INVENTORY.

VIII. CONTROL MEASURES

RESPIRATORY PROTECTION(SPECIFIC TYPE): NA

VENTILATION: NA

PROTECTIVE GLOVES: VINYL OR RUBBER.

EYE PROTECTION: SAFETY GLASSES.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NONE.

WORK/HYGIENIC PRACTICES: NO EATING OR DRINKING WHILE WORKING WITH THIS PRODUCT

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