

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 - BROMIDE STANDARD

CATALOG NO.: 943506  
EFFECTIVE DATE: 7/21/91

HAZARDOUS SHIPMENT LABELING: DOT-NONE IATA-NONE

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

II. HAZARDOUS INGREDIENTS (IDENTITY INFORMATION)

HAZARDOUS COMPONENTS\*:

SPECIFIC CHEMICAL IDENTITY: COMMON NAME(S)	CAS NO.	%	OSHA PEL	ACGIH TLV	LD 50 MG/KG
*SODIUM BROMIDE (NABR)	7647-15-6	1.0	NONE	NONE	3.5G (ORL-RAT)
*DEIONIZED WATER (H2O)	7732-18-5	99.0	NONE	NONE	190,000 (IPR-MUS)

\* 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\* NON-HAZARDOUS COMPONENT.

\*\* NOT AVAILABLE OR NOT APPLICABLE.

PAGE 1

III. PHYSICAL DATA

BOILING POINT (760 MM HG): 100 C  
SPECIFIC GRAVITY (H2O = 1): 1  
PH @ 25 C: 5.5 - 8.0  
VOLATILE, % BY WT.: 99%  
VAPOR DENSITY (AIR = 1): NA\*\*  
APPEARANCE AND COLOR: COLORLESS, ODORLESS LIQUID  
FREEZING POINT: 0 C  
VAPOR PRESSURE @: NA  
SOLUBILITY IN WATER, % BY WT. @: MISCIBLE  
EVAPORATION RATE (BUTYL, ACETATE = 1): NA

IV. FIRE AND EXPLOSION HAZARD DATA

---

FLASH POINT (TEST METHOD): NONE  
AUTOIGNITION TEMPERATURE: NA  
FLAMMABLE LIMITS IN AIR, % BY VOLUME: LOWER-NA UPPER-NA  
EXTINGUISHING MEDIA: WATER, CO2, DRY CHEMICAL  
SPECIAL FIRE-FIGHTING PROCEDURES: NONE  
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE; THIS SOLUTION IS NON-FLAMMABLE.

V. REACTIVITY DATA

---

STABILITY: STABLE  
CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID):  
ALKALOIDAL AND METALLIC SALTS AND ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS:  
HEATED TO DECOMPOSITION, CAN EMIT TOXIC FUMES OF BROMINE.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR  
CONDITION TO AVOID: NONE

VI. HEALTH HAZARD DATA

---

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

HEALTH HAZARDS (ACUTE AND CHRONIC):  
THIS PRODUCT IS A LOW HAZARD FOR BOTH CHRONIC AND ACUTE EXPOSURE.

CARCINOGENICITY: NTP? IARC MONOGRAPHS? OSHA REGULATED?  
NOT FOUND ON THESE LISTS.

SIGNS AND SYMPTOMS OF EXPOSURE:  
POSSIBLE IRRITATION OF THE SKIN IF ALLOWED TO REMAIN ON SKIN FOR LONG PERIODS OF TIME.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:  
CAUSES STINGING IN AN OPEN CUT OR WOUND.

PAGE 2

EMERGENCY AND FIRST AID PROCEDURES:  
WASH OFF CONTACT AREA WITH WATER.

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 AND FLUSH DOWN DRAIN IF ALLOWED.

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

OTHER PRECAUTIONS:  
SARA TITLE III: SODIUM BROMIDE DOES NOT APPEAR ON ANY OF THE SARA LISTS.  
NOT FOUND ON CAL PROP. 65 LISTING. REPORTED IN EPA TSCA INVENTORY.

VII. CONTROL MEASURES

---

RESPIRATORY PROTECTION (SPECIFY TYPE): NONE

VENTILATION:  
LOCAL EXHAUST-NONE  
SPECIAL-NONE  
MECHANICAL (GENERAL)-NONE  
OTHER-NONE

PROTECTIVE GLOVES: YES (ANY TYPE)

EYE PROTECTION: SAFETY GLASSES

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NONE

WORK/HYGIENIC PRACTICES:

SAFETY STATION EYE WASH STATION SHOULD BE AVAILABLE.

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.

PAGE 3 (LAST PAGE)  
ORION MATERIAL SAFETY DATA SHEET

SHEET 1 OF 2

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

I. PRODUCT IDENTIFICATION

PRODUCT NAME	CATALOG NO.	EFFECTIVE DATE
ORION APPLICATION SOLUTION IODIDE STANDARD	945306	7/21/91

HAZARDOUS SHIPMENT LABELLING:	DOT	IATA
	NONE	NONE

PREPARED BY	TITLE	QUALITY ASSURANCE CHEMIST
THOMAS FLYNN		
APPROVED BY	TITLE	DIRECTOR REGULATORY MATTERS
LYNN ORLOWIZ		

II. HAZARDOUS INGREDIENTS (IDENTITY INFORMATION)

HAZARDOUS COMPONENTS* SPECIFIC CHEMICAL IDENTITY: COMMON NAME(S)	CAS NO.	%	OSHA PEL	ACGIH TLV	LD
SODIUM IODIDE (NAI)	7681-82-5	1.5	NONE	NONE	4350 (ORL-RAT)

\*\*DEIONIZED WATER (H2O) 7732-18-5 98.5 NONE NONE 190,000 (IPR-MUS)

III. PHYSICAL DATA

BOILING POINT 760 MM HG	100 'C	FREEZING POINT	0 'C
SPECIFIC GRAVITY (H20=1)	1	VAPOR PRESSURE @	N A
PH @	'C	SOLUBILITY IN WATER, % BY WT. @	MISCIBLE
25	5.0-7.5	EVAPORATION RATE (BUTYL ACETATE=1)	N A
VOLATILES, % BY WT.	*N A	APPEARANCE AND ODOR	CLEAR, COLORLESS, ODORLESS SOLUTION
VAPOR DENSITY (AIR=1)	NA	IV. FIRE AND EXPLOSION HAZARD DATA	

FLASH POINT (TEST METHOD)	NONE	AUTOIGNITION TEMPERATURE	NA
FLAMMABLE LIMITS		LOWER	UPPER
IN AIR, % BY VOLUME:		NA	NA
EXTINGUISHING MEDIA	WATER, CO2, DRY CHEMICAL		
SPECIAL FIRE-FIGHTING PROCEDURES	NONE		
UNUSUAL FIRE AND EXPLOSION HAZARDS	NONE; THIS SOLUTION IS NON-FLAMMABLE.		

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

LIABILITY IS EXPRESSLY DOCUMENT NO. 205462-001  
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.

N A\* NOT AVAILABLE OR NOT APPLICABLE.

\* \* NON-HAZARDOUS COMPONENT.

PRINTED IN U.S.A.  
FORM MSDS/0791

ORION MATERIAL SAFETY DATA SHEET

SHEET 2 OF 2 IODIDE STANDARD  
 PRODUCT NAME: ORION APPLICATION SOLUTION CATALOG NO.: 945306

V. REACTIVITY DATA

STABILITY CONDITIONS TO AVOID  
 UNSTABLE STABLE X HEATING, STORING NEAR OXIDIZERS.  
 INCOMPATIBILITY (MATERIALS TO AVOID)  
 BF3, CLF3, FCLO4  
 HAZARDOUS DECOMPOSITION PRODUCTS  
 HEATED TO DECOMPOSITION, CAN EMIT TOXIC FUMES OF IODINE.  
 HAZARDOUS POLYMERIZATION: CONDITION TO AVOID  
 MAY OCCUR WILL NOT OCCUR X NONE

VI. HEALTH HAZARD DATA

ROUTE(S) OF ENTRY: INHALATION? SKIN? INGESTION?  
 NO YES YES  
 HEALTH HAZARDS (ACUTE AND CHRONIC)  
 ACUTE: LOW HEALTH HAZARD. CHRONIC: OVER LONG PERIOD OF EXPOSURE, COULD CAUSE  
 IRRITATION OF SKIN. IN LARGE DOSES COULD CAUSE NAUSEA, VOMITING, HEADACHES,  
 HIVES, BLISTERS, BOILS, AND ABNORMALITIES OF THE ENDOCRINE SYSTEM.  
 CARCINOGENICITY: NTP? IARC MONOGRAPHS? OSHA REGULATED?  
 NOT FOUND ON THESE LISTS.  
 SIGNS AND SYMPTOMS OF EXPOSURE  
 RED, IRRITATED SKIN, WEAKNESS, LOSS OF WEIGHT, AND GENERAL DEPRESSION.  
 MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE SKIN AND THYROID  
 DISEASES.  
 EMERGENCY AND FIRST AID PROCEDURES WASH OFF CONTACT AREA WITH WATER.  
 INTERNAL EXPOSURE: GIVE LARGE AMOUNTS OF WATER; CONSULT PHYSICIAN.

VII. PRECAUTIONS (SAFE HANDLING AND USE)

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
 SWEEP UP AND SET ASIDE FOR WASTE DISPOSAL.  
 WASTE DISPOSAL METHOD  
 CONSULT ALL FEDERAL, STATE, AND LOCAL LAWS AND FLUSH DOWN DRAIN IF ALLOWED.  
 PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING NFPA RATING: SCALE (0-4);  
 HEALTH -1, FIRE -0, REACTIVITY -0, SPECIFIC -NONE. KEEP CONTAINER SEALED.  
 OTHER PRECAUTIONS  
 SARA TITLE III: THIS PRODUCT DOES NOT APPEAR ON ANY OF THE SARA LISTS.  
 NOT FOUND ON CAL. PROP. 65 LISTING. REPORTED IN EPA TSCA INVENTORY.

VIII. CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE) N A  
 VENTILATION LOCAL EXHAUST N A SPECIAL NO  
 MECHANICAL (GENERAL) NO OTHER NO  
 PROTECTIVE GLOVES NO EYE PROTECTION SAFETY GLASSES  
 OTHER PROTECTIVE CLOTHING  
 OR EQUIPMENT NONE  
 WORK/HYGENIC PRACTICES EMERGENCY EYE WASH SHOULD BE AVAILABLE.