

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: BUFFER A - PH 6.97

CATALOG NO.: PART OF 700001

EFFECTIVE DATE: 9/07/91

HAZARDOUS SHIPMENT LABELING: DOT: NONE
IATA: NONE

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 PEL	ACGIH TLV	LD50 50 MG/KG
SPECIFIC CHEMICAL IDENTITY: COMMON NAMES					
POTASSIUM PHOSPHATE (MONO-BASIC) (KH ₂ PO ₄)	7778-77-0	0.034	NONE	NONE	NONE
SODIUM PHOSPHATE (DIBASIC) (NA ₂ HPO ₄)	7558-79-4	0.035	NONE	NONE	298 (IVN-DOG)
POTASSIUM CHLORIDE (KCL)**	7447-40-7	0.074	NONE	NONE	383 (ORL-RAT)
DEIONIZED WATER (H ₂ O)**	7732-18-5	99.857	NONE	NONE	190000 (IPR-MUS)

III. PHYSICAL DATA

BOILING POINT 750 MM HG: 100 C
SPECIFIC GRAVITY (H₂O=1): 1.0
PH @ 25 C: 6.97 +/- 0.03
VOLATILES, % BY WT.: NA
VAPOR DENSITY (AIR=1): NA
APPEARANCE AND ODOR: CLEAR, 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): NOT FLAMMABLE
AUTOIGNITION TEMPERATURE: NA

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

EXTINGUISHING MEDIA: DRY CHEMICAL, WATER, CO₂
SPECIAL FIRE-FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

V. REACTIVITY DATA

STABILITY: UNSTABLE
 STABLE X
CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID): NONE, SUITABLE FOR ANY GENERAL STORAGE.

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

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? NO.

HEALTH HAZARDS (ACUTE AND CHRONIC):
LOW HAZARD FOR BOTH ACUTE AND CHRONIC VIA ALL ROUTES OF ENTRY BECAUSE OF LOW
CONCENTRATION OF SALTS.

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

SIGNS AND SYMPTOMS OF EXPOSURE: POSSIBLE IRRITATION OF SKIN IN SENSITIZED
PERSON.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: COULD CAUSE STINGING AND
PAIN IN AN OPEN WOUND.

EMERGENCY AND FIRST AID PROCEDURES:
WASH OFF CONTACTED AREA WITH WATER.
INGESTION: GIVE LARGE AMOUNTS OF WATER; 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: OBSERVE ALL FEDERAL, STATE AND LOCAL LAWS WHEN
DISPOSING OF THIS PRODUCT.

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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 RELEASES OF NA₂HPO₄ ARE SUBJECT TO REPORTING
UNDER SECTION 304 OF SARA AND CERCLA. NOT FOUND ON CAL. PROP. 65 LISTING.
COMPONENTS ARE REPORTED IN EPA TSCA INVENTORY.

VIII. CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE): NONE

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

PROTECTIVE GLOVES: NONE
EYE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NOT REQUIRED.

WORK/HYGIENIC PRACTICES: NO SPECIAL REQUIREMENTS.

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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REV. B

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: BUFFER B - PH 4.10

CATALOG NO.: PART OF 700001

EFFECTIVE DATE: 9/07/91

HAZARDOUS SHIPMENT LABELING: DOT: NONE
IATA: NONE

PREPARED BY: T. FLYNN TITLE: QUALITY ASSURANCE CHEMIST
APPROVED BY: T. FLYNN TITLE: DIRECTOR REGULATORY MATTERS

II. HAZARDOUS INGREDIENTS (IDENTIFY INFORMATION)

HAZARDOUS COMPONENTS* CAS NO. % OSHA ACGIH LD50
SPECIFIC CHEMICAL IDENTITY: PEL TLV 50 MG/KG
COMMON NAMES
POTASSIUM HYDROGEN PHTHALATE 877-24-7 0.10 NONE NONE NA
(KHP)
POTASSIUM CHLORIDE (KCL)** 7447-40-7 0.074 NONE NONE 383 (ORL-RAT)
HYAMINE 1622 (DIAPP) 121-54-0 0.005 NONE NONE 363 (ORL-RAT)
**DEIONIZED WATER (H2O) 7732-18-5 99.821 NONE NONE 190000 (IPR-MUS)

III. PHYSICAL DATA

BOILING POINT 750 MM HG: 100 C
SPECIFIC GRAVITY (H2O=1): 1.0
PH @ 25 C: 4.10 +/- 0.03
VOLATILES, % BY WT.: NA
VAPOR DENSITY (AIR=1): NA
APPEARANCE AND ODOR: CLEAR, 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): NOT FLAMMABLE
AUTOIGNITION TEMPERATURE: NA

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

EXTINGUISHING MEDIA: WATER, CO2

SPECIAL FIRE-FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

V. REACTIVITY DATA

STABILITY: UNSTABLE
 STABLE
CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID): NONE, SUITABLE FOR ANY GENERAL STORAGE.

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

HAZARDOUS POLYMERIZATION: MAY OCCUR
 WILL NOT OCCUR

CONDITIONS TO AVOID: NONE

VI. HEALTH HAZARD DATA

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

HEALTH HAZARDS (ACUTE AND CHRONIC):
LOW HAZARD FOR BOTH ACUTE AND CHRONIC VIA ALL ROUTES OF ENTRY BECAUSE OF LOW
CONCENTRATION OF SALTS.

CARCINOGENICITY:
NTP? IARC MONOGRAPHS? OSHA REGULATED? HYAMINE 1622 REPORTED IN OCTOBER 1984
STUDIES (NTP).

SIGNS AND SYMPTOMS OF EXPOSURE: POSSIBLE IRRITATION OF SKIN IN SENSITIZED
PERSON.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: COULD CAUSE STINGING AND
PAIN IN AN OPEN WOUND.

EMERGENCY AND FIRST AID PROCEDURES:
WASH OFF CONTACTED AREA WITH WATER.
INGESTION: GIVE LARGE AMOUNTS OF WATER; 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: OBSERVE ALL FEDERAL, STATE AND LOCAL LAWS WHEN
DISPOSING OF THIS PRODUCT.

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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: THE CHEMICALS IN THIS PRODUCT DO NOT APPEAR ON ANY OF THE SARA
LISTS OR CAL. PROP. 65 LISTING. COMPONENTS FOUND IN EPA TSCA INVENTORY.

VIII. CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE): NONE

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

PROTECTIVE GLOVES: NONE
EYE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: EMERGENCY EYE WASH SHOULD BE
AVAILABLE.

WORK/HYGIENIC PRACTICES: NO SPECIAL REQUIREMENTS.

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

I. PRODUCT IDENTIFICATION

PRODUCT NAME: PH PHIX ADJUSTOR

CATALOG NO.: PART OF 700001

EFFECTIVE DATE: 9/07/91

HAZARDOUS SHIPMENT LABELING: DOT: NONE
IATA: NONE

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 PEL	ACGIH TLV	LD50 50 MG/KG
SPECIFIC CHEMICAL IDENTITY: COMMON NAMES					
POTASSIUM CHLORIDE (KCL)**	7447-40-7	7.4	NONE	NONE	383 (ORL-RAT)
**DEIONIZED WATER (H2O)	7732-18-5	92.6	NONE	NONE	190000 (IPR-MUS)

III. PHYSICAL DATA

BOILING POINT 750 MM HG: 100 C
SPECIFIC GRAVITY (H2O=1): 1.01
PH @ 25 C: 5.2-5.7
VOLATILES, % BY WT.: NA
VAPOR DENSITY (AIR=1): NA
APPEARANCE AND ODOR: CLEAR, ODORLESS SOLUTION
FREEZING POINT: -4 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

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IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD): NOT FLAMMABLE
AUTOIGNITION TEMPERATURE: NA

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

EXTINGUISHING MEDIA: DRY CHEMICAL, WATER, CO2
SPECIAL FIRE-FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

V. REACTIVITY DATA

STABILITY: UNSTABLE
 STABLE X
CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID): NONE, SUITABLE FOR ANY GENERAL STORAGE.

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

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? NO.

HEALTH HAZARDS (ACUTE AND CHRONIC):
LOW HAZARD FOR BOTH ACUTE AND CHRONIC VIA ALL ROUTES OF ENTRY.
CARCINOGENICITY:
NTP? IARC MONOGRAPHS? OSHA REGULATED? NOT FOUND ON THESE LISTS.

SIGNS AND SYMPTOMS OF EXPOSURE: NONE.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: COULD CAUSE STINGING OR IRRITATION IN AN OPEN CUT.

EMERGENCY AND FIRST AID PROCEDURES: WASH OFF SKIN OR EYES WITH WATER.

VII. PRECAUTIONS (SAFE HANDLING AND USE)

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: CLEAN UP AND WASH DOWN DRAIN.

WASTE DISPOSAL METHOD: OBSERVE ALL FEDERAL, STATE AND LOCAL LAWS.

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: STORE AT ROOM TEMPERATURE TO PROTECT PRODUCT INTEGRITY.

NFPA RATING: SCALE (0-4): HEALTH-0, FIRE-0, REACTIVITY-0, SPECIFIC-NONE.

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

VIII. CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE): NONE

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

PROTECTIVE GLOVES: NONE
EYE PROTECTION: SAFETY GLASSES

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NOT REQUIRED.

WORK/HYGIENIC PRACTICES: NO SPECIAL REQUIREMENTS.

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