**MSDS COVERSHEET**

**CATALOG # BK165-S**

**SIGNAL-SEEKER SUMO 1 DETECTION KIT**

<table>
<thead>
<tr>
<th>PART/CATALOG #</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLST01</td>
<td>BLASTR™ Lysis Buffer</td>
</tr>
<tr>
<td>BDB01-S</td>
<td>BLASTR™ Dilution Buffer</td>
</tr>
<tr>
<td>BWB02-S</td>
<td>BLASTR-2™ Wash Buffer</td>
</tr>
<tr>
<td>NEM09BB</td>
<td>De-ubiquitination/SUMOylation inhibitor (N-ethylmaleimide and TPEN)</td>
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<tr>
<td>ASM11-Beads</td>
<td>SUMO1 Affinity Beads</td>
</tr>
<tr>
<td>GL550</td>
<td>Precision Red Advanced Protein Assay</td>
</tr>
<tr>
<td>PIC02</td>
<td>Protease Inhibitor Cocktail</td>
</tr>
<tr>
<td>CIG03-Beads</td>
<td>IP Control Beads</td>
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<tr>
<td>ASM01-S</td>
<td>Anti-SUMO-1 Antibody</td>
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<td>CLRA</td>
<td>Chemiluminescent Detection Reagent A</td>
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<tr>
<td>CLR B</td>
<td>Chemiluminescent Detection Reagent B</td>
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<tr>
<td>TT89 (no MSDS needed)</td>
<td>Spin Columns Collection Tubes</td>
</tr>
<tr>
<td>BLR02 (no MSDS needed)</td>
<td>BLASTR™ Filters</td>
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</table>

Notice: To the best of our knowledge, the information contained herein is accurate. However, neither the supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.
SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: BLST01

NAME: BLASTR™ LYSIS BUFFER

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

NOT A HAZARDOUS SUBSTANCE OR MIXTURE. <1% HAZARDOUS MATERIAL

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

NOT A HAZARDOUS SUBSTANCE OR MIXTURE. <1% HAZARDOUS MATERIAL.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

NONE

HMIS CLASSIFICATION
HEALTH HAZARD: 0
FLAMMABILITY: 0
PHYSICAL HAZARDS: 0

NFPA RATING
HEALTH HAZARD: 0
FIRE: 0
REACTIVITY HAZARD: 0

POTENTIAL HEALTH EFFECTS
INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION
SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES: MAY CAUSE EYE IRRITATION
INGESTION: MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

THE COMPONENTS OF THE LYSIS BUFFER ARE PROPRIETARY.

NO DANGEROUS OR HAZARDOUS MATERIALS >1%

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN IF ARTIFICIAL RESPIRATION WAS NEEDED.
AFTER SKIN CONTACT: WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER.

AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER.

AFTER SWALLOWING: DO NOT INDUCE VOMITING. WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY
NOT FLAMMABLE OR COMBUSTIBLE

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE FOR FIREFIGHTING IF NECESSARY. PREVENT CONTACT WITH SKIN AND EYES.
HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: AVOID DUST FORMATION. AVOID BREATHING VAPORS, MIST OR GAS. ENSURE ADEQUATE VENTILATION.
ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. PREVENT FURTHER LEAKAGE IF SAFE TO DO SO. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: IN LYOPHILIZED FORM, SWEEP UP AND SHOVEL. IN LIQUID FORM, SOAK UP WITH INERT ABSORBENT MATERIAL. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.

REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOR OR MIST. ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES
STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 4°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.

FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>CAS#</th>
<th>VALUE</th>
<th>CONTROL PARAMETERS</th>
<th>BASIS</th>
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<tbody>
<tr>
<td>PROPRIETARY</td>
<td>NA</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>USA. WORKPLACE ENVIRONMENTAL EXPOSURE LEVELS (WEEL)</td>
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EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS
GENERAL INDUSTRIAL HYGIENE PRACTICE

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

PERSONAL PROTECTIVE EQUIPMENT

BREATHING EQUIPMENT
RESPIRATORY PROTECTION IS NOT REQUIRED. WHERE PROTECTION FROM NUISANCE LEVELS OF DUST ARE DESIRED, USE TYPE N95 (US) OR TYPE P1 (EN 143) DUST MASKS.
USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

EYE PROTECTION: USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166 (EU).
SKIN PROTECTION: HANDLE WITH GLOVES. THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASED ON PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE’S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. CHOOSE BODY PROTECTION IN RELATION TO ITS TYPE, TO THE CONCENTRATION AND AMOUNT OF DANGEROUS SUBSTANCES, AND TO THE SPECIFIC WORK-PLACE. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

CONTROL OF ENVIRONMENTAL EXPOSURE
DO NOT LET PRODUCT ENTER DRAINS

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LYOPHILIZED
COLOR: WHITE
ODOR: NO DATA AVAILABLE

SAFETY DATA
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
IGNITION TEMPERATURE: NO DATA AVAILABLE
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSION LIMIT: NO DATA AVAILABLE
UPPER EXPLOSION LIMIT: NO DATA AVAILABLE
SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE. IN EVENT OF FIRE, SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
LD50 ORAL: NO DATA AVAILABLE

INHALATION LC50
LC50 INHALATION: NO DATA AVAILABLE

DERMAL LD50
LD50 DERMAL: NO DATA AVAILABLE

SKIN IRRITATION AND CORROSION
NO DATA AVAILABLE

SERIOUS EYE DAMAGE/EYE IRRITATION
NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

GERM CELL MUTAGENICITY
NO DATA AVAILABLE

CARCINOGENICITY
NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

**REPRODUCTIVE TOXICITY**

NO DATA AVAILABLE

**TERATOGENICITY**

NO DATA AVAILABLE

**SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM)**

NO DATA AVAILABLE

**SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM)**

NO DATA AVAILABLE

**ASPIRATION HAZARD**

NO DATA AVAILABLE

**SIGNS AND SYMPTOMS OF EXPOSURE**

NO DATA AVAILABLE

**SYNERGISTIC EFFECTS**

NO DATA AVAILABLE

**SECTION 12. ECOLOGICAL INFORMATION**

**TOXICITY**

NO DATA AVAILABLE

**PERSISTENCE AND DEGRADABILITY**

NO DATA AVAILABLE

**BIOACCUMULATIVE POTENTIAL**

NO DATA AVAILABLE

**MOBILITY IN SOIL**

NO DATA AVAILABLE
PBT AND vPvB ASSESSMENT

NO DATA AVAILABLE

OTHER ADVERSE EFFECTS

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERSAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

THIS PRODUCT IS SUBJECT TO THE DE MINIMIS EXCEPTIONS FOR DANGEROUS GOODS/HAZARDOUS MATERIALS IN ACCORDANCE WITH THE FOLLOWING REGULATIONS: IATA 2.6.10, ADR 3.5.1.4, AND U.S. DOT 49 CFR 173.4b.

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION


NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:
THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
NO SARA HAZARDS

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: BDB01

NAME: BLASTR™ DILUTION BUFFER

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

NOT A HAZARDOUS SUBSTANCE OR MIXTURE. ≤1% HAZARDOUS MATERIAL

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

NOT A HAZARDOUS SUBSTANCE OR MIXTURE. ≤1% HAZARDOUS MATERIAL.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

NONE

HMIS CLASSIFICATION
HEALTH HAZARD: 0
FLAMMABILITY: 0
PHYSICAL HAZARDS: 0

NFPA RATING
HEALTH HAZARD: 0
FIRE: 0
REACTIVITY HAZARD: 0

POTENTIAL HEALTH EFFECTS
INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION
SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES: MAY CAUSE EYE IRRITATION
INGESTION: MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

THE COMPONENTS OF THE DILUTION BUFFER ARE PROPRIETARY.

NO DANGEROUS OR HAZARDOUS MATERIALS >1%

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN IF ARTIFICIAL RESPIRATION WAS NEEDED.

AFTER SKIN CONTACT: WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER.

AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER.

AFTER SWALLOWING: DO NOT INDUCE VOMITING. WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY
NOT FLAMMABLE OR COMBUSTIBLE

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING AGENTS: USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE

ADVICE FOR FIREFIGHTERS

PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE Device FOR FIREFIGHTING IF NECESSARY. PREVENT CONTACT WITH SKIN AND EYES.

HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: AVOID DUST FORMATION. AVOID BREATHING VAPORS, MIST OR GAS. ENSURE ADEQUATE VENTILATION.

ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. PREVENT FURTHER LEAKAGE IF SAFE TO DO SO. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: IN LYOPHILIZED FORM, SWEEP UP AND SHOVEL. IN LIQUID FORM, SOAK UP WITH INERT ABSORBENT MATERIAL. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.

REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOR OR MIST. ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 4°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.

FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS
GENERAL INDUSTRIAL HYGIENE PRACTICE

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED.
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK.
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING.
AVOID CONTACT WITH THE EYES AND SKIN.

PERSONAL PROTECTIVE EQUIPMENT

BREATHING EQUIPMENT
RESPIRATORY PROTECTION IS NOT REQUIRED. WHERE PROTECTION FROM NUISANCE LEVELS OF DUST ARE DESIRED, USE TYPE N95 (US) OR TYPE P1 (EN 143) DUST MASKS. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

EYE PROTECTION: USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166 (EU).
SKIN PROTECTION: HANDLE WITH GLOVES. THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE’S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. CHOOSE BODY PROTECTION IN RELATION TO ITS TYPE, TO THE CONCENTRATION AND AMOUNT OF DANGEROUS SUBSTANCES, AND TO THE SPECIFIC WORK-PLACE. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

CONTROL OF ENVIRONMENTAL EXPOSURE
DO NOT LET PRODUCT ENTER DRAINS

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION

FORM: LYOPHILIZED
COLOR: WHITE
ODOR: NO DATA AVAILABLE

SAFETY DATA
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
IGNITION TEMPERATURE: NO DATA AVAILABLE
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSION LIMIT: NO DATA AVAILABLE
UPPER EXPLOSION LIMIT: NO DATA AVAILABLE
VAPOR PRESSURE: NO DATA AVAILABLE
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE. IN EVENT OF FIRE, SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
LD50 ORAL: NO DATA AVAILABLE

INHALATION LC50
LC50 INHALATION: NO DATA AVAILABLE

DERMAL LD50
LD50 DERMAL: NO DATA AVAILABLE

SKIN IRRITATION AND CORROSION
NO DATA AVAILABLE

SERIOUS EYE DAMAGE/EYE IRRITATION
NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

GERM CELL MUTAGENICITY
NO DATA AVAILABLE

CARCINOGENICITY
NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

**REPRODUCTIVE TOXICITY**

NO DATA AVAILABLE

**TERATOGENICITY**

NO DATA AVAILABLE

**SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM)**

NO DATA AVAILABLE

**SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM)**

NO DATA AVAILABLE

**ASPIRATION HAZARD**

NO DATA AVAILABLE

**SIGNS AND SYMPTOMS OF EXPOSURE**

NO DATA AVAILABLE

**SYNERGISTIC EFFECTS**

NO DATA AVAILABLE

**SECTION 12. ECOLOGICAL INFORMATION**

**TOXICITY**

NO DATA AVAILABLE

**PERSISTENCE AND DEGRADABILITY**

NO DATA AVAILABLE

**BIOACCUMULATIVE POTENTIAL**

NO DATA AVAILABLE

**MOBILITY IN SOIL**

NO DATA AVAILABLE
PBT AND vPvB ASSESSMENT

NO DATA AVAILABLE

OTHER ADVERSE EFFECTS

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERASAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

THIS PRODUCT IS SUBJECT TO THE DE MINIMIS EXCEPTIONS FOR DANGEROUS GOODS/HAZARDOUS MATERIALS IN ACCORDANCE WITH THE FOLLOWING REGULATIONS: IATA 2.6.10, ADR 3.5.1.4, AND U.S. DOT 49 CFR 173.4b.

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION


NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:
THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
NO SARA HAZARDS

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: BWB01

NAME: BLASTR™ WASH BUFFER

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

NOT A HAZARDOUS SUBSTANCE OR MIXTURE. <1% HAZARDOUS MATERIAL

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

NOT A HAZARDOUS SUBSTANCE OR MIXTURE. <1% HAZARDOUS MATERIAL.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

NONE

HMIS CLASSIFICATION
HEALTH HAZARD: 0
FLAMMABILITY: 0
PHYSICAL HAZARDS: 0

NFPA RATING
HEALTH HAZARD: 0
FIRE: 0
REACTIVITY HAZARD: 0

POTENTIAL HEALTH EFFECTS
INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT IRRITATION
SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES: MAY CAUSE EYE IRRITATION
INGESTION: MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

THE COMPONENTS OF THE WASH BUFFER ARE PROPRIETARY.
NO DANGEROUS OR HAZARDOUS MATERIALS >1%

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN IF ARTIFICIAL RESPIRATION WAS NEEDED.
AFTER SKIN CONTACT: WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER.
AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER.
AFTER SWALLOWING: DO NOT INDUCE VOMITING. WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY
NOT FLAMMABLE OR COMBUSTIBLE

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE FOR FIREFIGHTING IF NECESSARY. PREVENT CONTACT WITH SKIN AND EYES.
HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: AVOID DUST FORMATION. AVOID BREATHING VAPORS, MIST OR GAS. ENSURE ADEQUATE VENTILATION.
ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. PREVENT FURTHER LEAKAGE IF SAFE TO DO SO. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: IN LYOPHILIZED FORM, SWEEP UP AND SHOVEL. IN LIQUID FORM, SOAK UP WITH INERT ABSORBENT MATERIAL. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL. REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOR OR MIST. ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES
STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 4°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE. FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS
CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS
GENERAL INDUSTRIAL HYGIENE PRACTICE

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

PERSONAL PROTECTIVE EQUIPMENT

BREATHING EQUIPMENT
Respiratory protection is not required. Where protection from nuisance levels of dust are desired, use Type N95 (US) or Type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

EYE PROTECTION: USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166 (EU).
SKIN PROTECTION: HANDLE WITH GLOVES. THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASED ON PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE’S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. CHOOSE BODY PROTECTION IN RELATION TO ITS TYPE, TO THE CONCENTRATION AND AMOUNT OF DANGEROUS SUBSTANCES, AND TO THE SPECIFIC WORK-PLACE. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

CONTROL OF ENVIRONMENTAL EXPOSURE
DO NOT LET PRODUCT ENTER DRAINS

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LYOPHILIZED
COLOR: WHITE
ODOR: NO DATA AVAILABLE

SAFETY DATA
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
IGNITION TEMPERATURE: NO DATA AVAILABLE
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSION LIMIT: NO DATA AVAILABLE
UPPER EXPLOSION LIMIT: NO DATA AVAILABLE
SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE. IN EVENT OF FIRE, SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
LD50 ORAL : NO DATA AVAILABLE

INHALATION LC50
LC50 INHALATION: NO DATA AVAILABLE

DERMAL LD50
LD50 DERMAL: NO DATA AVAILABLE

SKIN IRRITATION AND CORROSION
NO DATA AVAILABLE

SERIOUS EYE DAMAGE/EYE IRRITATION
NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

GERM CELL MUTAGENICITY
NO DATA AVAILABLE

CARCINOGENICITY
NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

REPRODUCTIVE TOXICITY

NO DATA AVAILABLE

TERATOGENICITY

NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

NO DATA AVAILABLE

ASPIRATION HAZARD

NO DATA AVAILABLE

SIGNS AND SYMPTOMS OF EXPOSURE

NO DATA AVAILABLE

SYNERGISTIC EFFECTS

NO DATA AVAILABLE

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

NO DATA AVAILABLE

PERSISTENCE AND DEGRADABILITY

NO DATA AVAILABLE

BIOACCUMULATIVE POTENTIAL

NO DATA AVAILABLE

MOBILITY IN SOIL

NO DATA AVAILABLE
PBT AND vPvB ASSESSMENT

NO DATA AVAILABLE

OTHER ADVERSE EFFECTS

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERsal OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

THIS PRODUCT IS SUBJECT TO THE DE MINIMIS EXCEPTIONS FOR DANGEROUS GOODS/HAZARDOUS MATERIALS IN ACCORDANCE WITH THE FOLLOWING REGULATIONS: IATA 2.6.10, ADR 3.5.1.4, AND U.S. DOT 49 CFR 173.4b.

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION


NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:
THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
NO SARA HAZARDS

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: NEM09BB

NAME: DE-UBIQUITINATION/SUMOYLATION INHIBITOR (N-ETHYLMALEIMIDE and TPEN)

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

ACUTE TOXICITY, ORAL (CATEGORY 2), H300

ACUTE TOXICITY, DERMAL (CATEGORY 3), H311

SKIN CORROSION (CATEGORY 1B), H314

SERIOUS EYE DAMAGE (CATEGORY 1), H318

SKIN SENSITIZATION (CATEGORY 1), H317

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM

SIGNAL WORD      DANGER

HAZARD STATEMENT(S)
H300 FATAL IF SWALLOWED
H311 TOXIC IN CONTACT WITH SKIN
H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE
H317 MAY CAUSE AN ALLERGIC SKIN REACTION

PRECAUTIONARY STATEMENT(S)

P260 DO NOT BREATHE DUST OR MIST
P264 WASH SKIN THOROUGHLY AFTER HANDLING
P270 DO NOT EAT, DRINK OR SMOKE WHEN USING THIS PRODUCT
P272 CONTAMINATED WORK CLOTHING SHOULD NOT BE ALLOWED OUT OF THE WORKPLACE
P280 WEAR PROTECTIVE GLOVES/PROTECTIVE CLOTHING/EYE PROTECTION/FACE PROTECTION
P301+P310 IF SWALLOWED, IMMEDIATELY CALL A POISON CENTER OR DOCTOR/PHYSICIAN
P301+P330+P331 IF SWALLOWED, RINSE MOUTH. DO NOT INDUCE VOMITING
P303+P361+P353 IF ON SKIN OR HAIR, REMOVE IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/SHOWER
P304+P340 IF INHALED, REMOVE PERSON TO FRESH AIR AND KEEP AT REST IN A POSITION COMFORTABLE FOR BREATHING
P305+P351+P338 IF IN EYES, RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES IF PRESENT AND EASY TO DO. CONTINUE RINSING
P310 IMMEDIATELY CALL A POISON CENTER OR DOCTOR/PHYSICIAN
P333+P313 IF SKIN IRRITATION OR RASH OCCURS, GET MEDICAL ADVICE/ATTENTION
P361 REMOVE/TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING
P363 WASH CONTAMINATED CLOTHING BEFORE REUSE
P405 STORE LOCKED UP

P501 DISPOSE OF CONTENTS/CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT

HMIS CLASSIFICATION
HEALTH HAZARD: 3
FLAMMABILITY: 2
PHYSICAL HAZARDS: 1
CHRONIC HEALTH HAZARD:

NFPA RATING
HEALTH HAZARD: 3
FIRE: 2
REACTIVITY HAZARD: 1

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCES
FORMULA C₆H₇NO₂
MOLECULAR WEIGHT 125.13 g/mol
CAS # 128-53-0
EC # 204-892-4

HAZARDOUS COMPONENTS
N-ETHYLMALEIMIDE
ACUTE TOX 2; ACUTE TOX 3; SKIN CORR. 1B; EYE DAM. 1; SKIN SENS. 1; H300, H311, H314, H317

SECTION 4. FIRST-AID MEASURES

GENERAL ADVICE: MOVE OUT OF DANGEROUS AREA. CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO PHYSICIAN

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN.

AFTER SKIN CONTACT: TAKE OFF CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. TRANSPORT PERSON TO HOSPITAL IMMEDIATELY. CONSULT PHYSICIAN.

AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. CONSULT PHYSICIAN. CONTINUE RINSING EYES DURING TRANSPORT TO HOSPITAL

AFTER SWALLOWING: DO NOT INDUCE VOMITING. WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5.  FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY
NOT FLAMMABLE OR COMBUSTIBLE

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE FOR FIREFIGHTING IF NECESSARY. PREVENT CONTACT WITH SKIN AND EYES.
HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES (NOx)

SECTION 6.  ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST FORMATION. AVOID BREATHING VAPORS, MIST OR GAS. ENSURE ADEQUATE VENTILATION.
ENVIRONMENTAL PRECAUTIONS: PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: IN LYOPHILIZED FORM, SWEEP UP AND SHOVEL. IN LIQUID FORM, SOAK UP WITH INERT ABSORBENT MATERIAL. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL. DISPOSE OF AS HAZARDOUS WASTE.
REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7.  HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOR OR MIST. ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES
STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 4°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.
FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED. LIGHT SENSITIVE

SECTION 8.  EXPOSURE CONTROLS/PERSONAL PROTECTION
COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS
GENERAL INDUSTRIAL HYGIENE PRACTICE

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK AND IMMEDIATELY AFTER HANDLING PRODUCT
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN AND CLOTHING

PERSONAL PROTECTIVE EQUIPMENT

BREATHING EQUIPMENT
WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULL-FACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR TYPE ABEK (EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

EYE PROTECTION: USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166 (EU). TIGHTLY FITTING SAFETY GOOGLES OR GLASSES OR FACESHIELD.

SKIN PROTECTION: HANDLE WITH GLOVES. THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE’S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.
FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

**BODY PROTECTION:** PROTECTIVE WORK CLOTHING. CHOOSE BODY PROTECTION IN RELATION TO ITS TYPE, TO THE CONCENTRATION AND AMOUNT OF DANGEROUS SUBSTANCES, AND TO THE SPECIFIC WORK-PLACE. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

**CONTROL OF ENVIRONMENTAL EXPOSURE**
DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

**GENERAL INFORMATION**

FORM: LYOPHILIZED
COLOR:
ODOR: NO DATA AVAILABLE

**SAFETY DATA**
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
IGNITION TEMPERATURE: NO DATA AVAILABLE
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSION LIMIT: NO DATA AVAILABLE
UPPER EXPLOSION LIMIT: NO DATA AVAILABLE
VAPOR PRESSURE: NO DATA AVAILABLE
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: NO DATA AVAILABLE

**SECTION 10. STABILITY AND REACTIVITY**

**REACTIVITY**

**CHEMICAL STABILITY**
STABLE UNDER RECOMMENDED STORAGE CONDITIONS. MAY DISCOLOR ON EXPOSURE TO LIGHT.

**CONDITIONS TO BE AVOIDED:** NO DATA AVAILABLE

**INCOMPATIBLE MATERIALS:** STRONG OXIDIZING AGENTS, STRONG ACIDS, STRONG BASES

**POSSIBILITY OF HAZARDOUS REACTIONS:** NO DATA AVAILABLE
HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE. IN EVENT OF FIRE, SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
LD50 ORAL – RAT – 25 mg/kg
REMARKS: BEHAVIORAL: SOMNOLENCE (GENERAL DEPRESSED ACTIVITY).
BEHAVIORAL: CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD

INHALATION LC50
LC50 INHALATION: NO DATA AVAILABLE

DERMAL LD50
LD50 DERMAL – GUINEA PIG – 500 mg/kg

SKIN IRRITATION AND CORROSION
NO DATA AVAILABLE

SERIOUS EYE DAMAGE/EYE IRRITATION
NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

GERM CELL MUTAGENICITY
NO DATA AVAILABLE

CARCINOGENICITY
NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

REPRODUCTIVE TOXICITY
NO DATA AVAILABLE

TERATOGENICITY
NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM)
SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

ASPIRATION HAZARD

SIGNS AND SYMPTOMS OF EXPOSURE

SYNERGISTIC EFFECTS

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

PERSISTENCE AND DEGRADABILITY

BIOACCUMULATIVE POTENTIAL

MOBILITY IN SOIL

PBT AND vPvB ASSESSMENT

OTHER ADVERSE EFFECTS

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD
AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERsal OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

THIS PRODUCT IS SUBJECT TO THE DE MINIMIS EXCEPTIONS FOR DANGEROUS GOODS/HAZARDOUS MATERIALS IN ACCORDANCE WITH THE FOLLOWING REGULATIONS: IATA 2.6.10, ADR 3.5.1.4, AND U.S. DOT 49 CFR 173.4b.

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION


NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
ACUTE HEALTH HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS
NONE

PENNSYLVANIA AND NEW JERSEY RIGHT TO KNOW COMPONENTS
N-ETHYLMALEIMIDE CAS # 128-53-0
CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: ASM11-BEADS

NAME: SUMO1 AFFINITY BEADS

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS
THIS PRODUCT IS NOT CONSIDERED HAZARDOUS

GHS CLASSIFICATION
THIS PRODUCT IS NOT CONSIDERED HAZARDOUS

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM    NONE
SIGNAL WORD   NONE

HAZARD STATEMENTS
NONE

PRECAUTIONARY STATEMENTS
NONE

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE
RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS. HANDLING AND/OR
PROCESSING OF THIS MATERIAL MAY GENERATE A DUST WHICH CAN CAUSE
MECHANICAL IRRITATION OF THE EYES, SKIN, NOSE AND THROAT. AVOID PROLONGED CONTACT WITH EYES, SKIN AND CLOTHING.

NFPA RATINGS (SCALE 0-4)
FIRE = 0
HEALTH = 0
REACTIVITY = 0

HMIS RATINGS
HEALTH = 0
FIRE = 0
REACTIVITY = 0

POTENTIAL HEALTH EFFECTS
INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.
SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES: MAY CAUSE EYE IRRITATION.
INGESTION: MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

PROTEIN: CAS#: NONE ≥90%
EINECS#: NONE

SUCROSE: CAS#: 57-50-1 5%
EINECS#: 200-334-9

DEXTRAN: CAS#: 9004-54-0 1%

PIPES (PIPERAZINE-N, N-BIS(2-ETHANESULFONIC ACID), SESQUISODIUM SALT) CAS#: 100037-69-2 <1%
EINECS#: UNLISTED

PROTEIN G BEADS: CAS#: NONE
EINECS#: NONE

SECTION 4. FIRST-AID MEASURES
AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN
AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. CONSULT PHYSICIAN
AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. THEN CONSULT PHYSICIAN
AFTER SWALLOWING: WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: CARBON DIOXIDE, EXTINGUISHING POWDER OR WATER SPRAY.

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE
PREVENT CONTACT WITH SKIN AND EYES
HAZARDOUS COMBUSTION PRODUCTS: NO DATA AVAILABLE

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. AVOID DUST FORMATION. AVOID BREATHING DUST. AVOID BREATHING VAPORS, MIST, OR GAS. ENSURE ADEQUATE VENTILATION.

ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: AFTER RECONSTITUTION, ABSORB WITH LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS, SAWDUST). IN LYOPHILIZED STATE, SWEEP UP POWDER. AVOID BREATHING DUST. DISPOSE CONTAMINATED MATERIAL AS WASTE ACCORDING TO SECTION 13. ENSURE ADEQUATE VENTILATION.

REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER. AVOID GENERATING DUST. AVOID BREATHING DUST. INFORMATION ABOUT PROTECTION AGAINST EXPLOSIONS AND FIRES: NOT IGNITABLE

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 2-8°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE. STORE DESICCATED.

FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

PERSONAL PROTECTIVE EQUIPMENT
GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

BREATHING EQUIPMENT
SHORT TERM FILTER DEVICE: TYPE FILTER P1 (EU EN 143) OF TYPE P95 (US)
DO NOT BREATHE VAPORS. USE MECHANICAL EXHAUST SYSTEM

PROTECTION OF HANDS
PROTECTIVE GLOVES.
The glove material has to be impermeable and resistant to the product/substance/preparation. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and therefore has to be checked prior to application. No recommendation can be given for the glove material for this product. Select glove materials base on penetration times, rates of diffusion and degradation of material.

MATERIAL OF GLOVES
The selection of suitable gloves depends not only on the material but on quality of material and varies from manufacturer to manufacturer.

PENETRATION TIME OF GLOVE MATERIAL
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOGGLES

BODY PROTECTION: PROTECTIVE WORK CLOTHING

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LYOPHILIZED POWDER
CHANGE IN CONDITION
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCIBLE

SECTION 10. STABILITY AND REACTIVITY
REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DATA AVAILABLE
MATERIALS TO AVOID: STRONG OXIDIZING AGENTS
POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE
HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE

SECTION 11. TOXICOLOGICAL INFORMATION

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP, OR OSHA.

POTENTIAL HEALTH EFFECTS

INHALATION MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION
EYES CAUSES EYE IRRITATION
INGESTION MAY BE HARMFUL IF SWALLOWED

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. ECOLOGICAL INFORMATION

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERsal OF SPILED MAERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION
DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION


NONE OF THE INGREDIENTS IS LISTED.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: CIG03-BEADS

NAME: IP CONTROL BEADS

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS
THIS PRODUCT IS NOT CONSIDERED HAZARDOUS

GHS CLASSIFICATION
THIS PRODUCT IS NOT CONSIDERED HAZARDOUS

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM NONE
SIGNAL WORD NONE

HAZARD STATEMENTS
NONE

PRECAUTIONARY STATEMENTS
NONE

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE
RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS. HANDLING AND/OR
PROCESSING OF THIS MATERIAL MAY GENERATE A DUST WHICH CAN CAUSE
MECHANICAL IRRITATION OF THE EYES, SKIN, NOSE AND THROAT. AVOID PROLONGED CONTACT WITH EYES, SKIN AND CLOTHING.

NFPA RATINGS (SCALE 0-4)
FIRE = 0
HEALTH = 0
REACTIVITY = 0

HMIS RATINGS
HEALTH = 0
FIRE = 0
REACTIVITY = 0

POTENTIAL HEALTH EFFECTS

INHALATION MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES MAY CAUSE EYE IRRITATION.
INGESTION MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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<thead>
<tr>
<th>Ingredient</th>
<th>CAS#</th>
<th>EINECS#</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>PROTEIN</td>
<td>NONE</td>
<td>NONE</td>
<td>≥90%</td>
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<tr>
<td>SUCROSE</td>
<td>57-50-1</td>
<td>200-334-9</td>
<td>8%</td>
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<td>DEXTRAN</td>
<td>9004-54-0</td>
<td>232-677-5</td>
<td>1.5%</td>
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<td>SODIUM CHLORIDE</td>
<td>7647-14-5</td>
<td>231-598-3</td>
<td>&lt;1%</td>
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<tr>
<td>TRIS BASE</td>
<td>77-86-1</td>
<td>201-064-4</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>AGAROSE BEADS</td>
<td>NONE</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN
AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. CONSULT PHYSICIAN
AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. THEN CONSULT PHYSICIAN
AFTER SWALLOWING: WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN

WASH CONTAMINATED CLOTHING BEFORE REUSE.
SECTION 5.  FIREFIGHTING MEASURES

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: CARBON DIOXIDE, EXTINGUISHING POWDER OR WATER SPRAY.

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE
PREVENT CONTACT WITH SKIN AND EYES
HAZARDOUS COMBUSTION PRODUCTS: NO DATA AVAILABLE

SECTION 6.  ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. AVOID DUST FORMATION. AVOID BREATHING DUST. AVOID BREATHING VAPORS, MIST, OR GAS. ENSURE ADEQUATE VENTILATION.
ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: AFTER RECONSTITUTION, ABSORB WITH LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS, SAWDUST). IN LYOPHILIZED STATE, SWEEP UP POWDER. AVOID BREATHING DUST. DISPOSE CONTAMINATED MATERIAL AS WASTE ACCORDING TO SECTION 13. ENSURE ADEQUATE VENTILATION.
REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7.  HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER. AVOID GENERATING DUST. AVOID BREATHING DUST.
INFORMATION ABOUT PROTECTION AGAINST EXPLOSIONS AND FIRES: NOT IGNITABLE

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 2-8°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE. STORE DESICCATED.
FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8.  EXPOSURE CONTROLS/PERSOANL PROTECTION

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

PERSONAL PROTECTIVE EQUIPMENT
GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

BREATHING EQUIPMENT
SHORT TERM FILTER DEVICE: TYPE FILTER P1 (EU EN 143) OF TYPE P95 (US)
DO NOT BREATHE VAPOURS. USE MECHANICAL EXHAUST SYSTEM

PROTECTION OF HANDS
PROTECTIVE GLOVES.
THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE
PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF
SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE
CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO
APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR
THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF
DIFFUSION AND DEGRADATION OF MATERIAL.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON
QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF
THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF
THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOOGLES

BODY PROTECTION: PROTECTIVE WORK CLOTHING

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LYOPHILIZED POWDER
CHANGE IN CONDITION
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCIBLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DATA AVAILABLE

MATERIALS TO AVOID: STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE

SECTION 11. TOXICOLOGICAL INFORMATION

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP, OR OSHA.

POTENTIAL HEALTH EFFECTS

INHALATION MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION
EYES CAUSES EYE IRRITATION
INGESTION MAY BE HARMFUL IF SWALLOWED

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. ECOLOGICAL INFORMATION

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERSAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.
IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION


NONE OF THE INGREDIENTS IS LISTED.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: ASM01-S

NAME: ANTI-SUMO-1 ANTIBODY

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS
THIS PRODUCT IS NOT CONSIDERED HAZARDOUS

GHS CLASSIFICATION
THIS PRODUCT IS NOT CONSIDERED HAZARDOUS

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM  NONE
SIGNAL WORD  NONE

HAZARD STATEMENTS
NONE

PRECAUTIONARY STATEMENTS
NONE

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE
RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS. HANDLING AND/OR
PROCESSING OF THIS MATERIAL MAY GENERATE A DUST WHICH CAN CAUSE
MECHANICAL IRRITATION OF THE EYES, SKIN, NOSE AND THROAT. AVOID PROLONGED CONTACT WITH EYES, SKIN AND CLOTHING.

NFPA RATINGS (SCALE 0-4)
FIRE = 0
HEALTH = 0
REACTIVITY = 0

HMIS RATINGS
HEALTH = 0
FIRE = 0
REACTIVITY = 0

POTENTIAL HEALTH EFFECTS
INHALATION MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES MAY CAUSE EYE IRRITATION.
INGESTION MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

PROTEIN
CAS#: NONE ≥95%
EINECS#: NONE

SUCROSE
CAS#: 57-50-1 1%
EINECS#: 200-334-9

PIPES (PIPERAZINE-N, N-BIS(2-ETHANESULFONIC ACID), SESQUISODIUM SALT)
CAS#: 100037-69-2 <1%
EINECS#: UNLISTED

DEXTRAN
CAS#: 9004-54-0 0.5%
EINECS#: 232-677-5

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN IN CASE OF COMPLAINTS
AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER
AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. THEN CONSULT PHYSICIAN
AFTER SWALLOWING: WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL FOR PHYSICIAN
SECTION 5.  FIREFIGHTING MEASURES

EXTINGUISHING MEDIA
SUITSABLE EXTINGUISHING AGENTS: CARBON DIOXIDE, EXTINGUISHING POWDER, ALCOHOL-RESISTENT FOAM OR WATER SPRAY.
ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE
PREVENT CONTACT WITH SKIN AND EYES

SECTION 6.  ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. AVOID DUST FORMATION. AVOID BREATHING VAPORS, MIST OR GAS.
ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: ABSORB WITH LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS, SAWDUST). DISPOSE CONTAMINATED MATERIAL AS WASTE ACCORDING TO SECTION 13. ENSURE ADEQUATE VENTILATION.
REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7.  HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.
INFORMATION ABOUT PROTECTION AGAINST EXPLOSIONS AND FIRES: NOT IGNITABLE

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES
STORAGE
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACES: STORE AT 2-8°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE. STORE DESICCATED.
FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8.  EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

PERSONAL PROTECTIVE EQUIPMENT
GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

BREATHING EQUIPMENT
SHORT TERM FILTER DEVICE: USE TYPE N95 OR TYPE P1 DUST MASKS
DO NOT BREATHE. USE MECHANICAL EXHAUST SYSTEM

PROTECTION OF HANDS
PROTECTIVE GLOVES.
THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE
PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF
SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE
CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO
APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR
THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF
DIFFUSION AND DEGRADATION OF MATERIAL.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON
QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF
THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF
THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOGGLES

BODY PROTECTION: PROTECTIVE WORK CLOTHING

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: SOLID (LYOPHILIZED POWDER)
CHANGE IN CONDITION
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
SELF-IGNITING: NO DATA AVAILABLE
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCELLABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS.

NO DATA AVAILABLE FOR ACUTE TOXICITY, SKIN CORROSION/IRRITATION, SERIOUS EYE DAMAGE/EYE IRRITATION, RESPIRATORY OR SKIN SENSITIZATION, GERM CELL MUTAGENICITY, SPECIFIC TARGET ORGAN TOXICITY-SINGLE EXPOSURE, SPECIFIC TARGET ORGAN TOXICITY-REPEATED EXPOSURE OR ASPIRATION HAZARD

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

POTENTIAL HEALTH EFFECTS

INHALATION MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.

SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.

EYES MAY CAUSE EYE IRRITATION.

INGESTION MAY BE HARMFUL IF SWALLOWED.

SECTION 12. ECOLOGICAL INFORMATION

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERSAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.
DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

OSHA HAZARDS
NO KNOWN OSHA HAZARDS

UNITED STATES REGULATORY INFORMATION

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)
NONE OF THE INGREDIENTS IS LISTED.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)
SECTION 313:
THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
NO SARA HAZARDS

MA, PA AND NJ RIGHT TO KNOW COMPONENTS
NONE LISTED

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: NOT CONTROLLED UNDER WHMIS.

EU REGULATORY INFORMATION
THIS PRODUCT IS NOT CLASSIFIED ACCORDING TO EU LEGISLATION.

SECTION 16. OTHER INFORMATION
THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL 
NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL 
NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE 
INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED 
ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY 
DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: BEB01

NAME: BEAD ELUTION BUFFER

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

ACUTE TOXICITY, ORAL (CATEGORY 4), H302

ACUTE TOXICITY, INHALATION (CATEGORY 4), H332

ACUTE TOXICITY, DERMAL (CATEGORY 4), H312

SKIN IRRITATION (CATEGORY 2), H315

SERIOUS EYE DAMAGE (CATEGORY 1), H318

ACUTE AQUATIC TOXICITY (CATEGORY 2), H401

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM

SIGNAL WORD DANGER
HAZARD STATEMENT(S)

H302 + H312 + H332  HARMFUL IF SWALLOWED, IN CONTACT WITH SKIN OR IF INHALED

H315  CAUSES SKIN IRRITATION

H318  CAUSES SERIOUS EYE DAMAGE

PRECAUTIONARY STATEMENT(S)

P260  DO NOT BREATHE DUST/FUME/GAS/MIST/VAPORS/SPRAY

P264  WASH SKIN THOROUGHLY AFTER HANDLING

P270  DO NOT EAT, DRINK OR SMOKE WHEN USING THIS PRODUCT

P271  USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA

P273  AVOID RELEASE TO THE ENVIRONMENT

P280  WEAR PROTECTIVE GLOVES/PROTECTIVE CLOTHING/EYE PROTECTION/FACE PROTECTION

P301+p312+p330  IF SWALLOWED, CALL A POISON CENTER OR DOCTOR/PHYSICIAN IF YOU FEEL UNWELL. RINSE MOUTH

P302+p352+p312  IF ON SKIN, WASH WITH PLENTY OF SOAP AND WATER. CALL A POISON CENTER OR DOCTOR/PHYSICIAN IF YOU FEEL UNWELL

P304+p340+p312  IF INHALED, REMOVE PERSON TO FRESH AIR AND KEEP COMFORTABLE FOR BREATHING

P305+p351+p338+p310  IF IN EYES, RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES IF PRESENT AND EASY TO DO. CONTINUE RINSING. IMMEDIATELY CALL A POISON CENTER OR DOCTOR/PHYSICIAN

P314  GET MEDICAL ATTENTION/ADVICE IF YOU FEEL UNWELL

P333+p313  IF SKIN IRRITATION OR RASH OCCURS, GET MEDICAL ATTENTION/ADVICE

P362  TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE RE-USE

P391  COLLECT SPILLAGE
DISPOSE OF CONTENTS/CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

NONE

HMIS CLASSIFICATION
HEALTH HAZARD: 2
FLAMMABILITY: 0
PHYSICAL HAZARDS: 0
CHRONIC HEALTH HAZARD:

NFPA RATING
HEALTH HAZARD: 2
FIRE: 0
REACTIVITY HAZARD: 0

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

THE COMPONENTS OF THE BEAD ELUTION BUFFER ARE PROPRIETARY.

THE BUFFER CONTAINS TWO DANGEROUS CHEMICALS.

SECTION 4. FIRST-AID MEASURES

GENERAL ADVICE: MOVE OUT OF DANGEROUS AREA. CONSULT A PHYSICIAN.

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN.

AFTER SKIN CONTACT: WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. CONSULT PHYSICIAN.

AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. CONSULT PHYSICIAN.

AFTER SWALLOWING: DO NOT INDUCE VOMITING. WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY
NOT FLAMMABLE OR COMBUSTIBLE

EXTINGUISHING MEDIA

SUITEABLE EXTINGUISHING AGENTS: USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE
ADVICE FOR FIREFIGHTERS

PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE FOR FIREFIGHTING IF NECESSARY. PREVENT CONTACT WITH SKIN AND EYES.

HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES, SULPHUR OXIDES

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST FORMATION. AVOID BREATHING VAPORS, MIST OR GAS. ENSURE ADEQUATE VENTILATION.

ENVIRONMENTAL PRECAUTIONS: PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: IN LYOPHILIZED FORM, SWEEP UP AND SHOVEL. IN LIQUID FORM, SOAK UP WITH INERT ABSORBENT MATERIAL. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL. DISPOSE OF AS HAZARDOUS WASTE.

REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING

PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOR OR MIST. ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

STORAGE REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 4°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.

FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

<table>
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<tr>
<th>COMPONENT</th>
<th>CAS#</th>
<th>VALUE</th>
<th>CONTROL PARAMETERS</th>
<th>BASIS</th>
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<tbody>
<tr>
<td>PROPRIETARY</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>USA. ACGIH THRESHOLD LIMIT VALUES (TLV)</td>
<td></td>
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<tr>
<td>REMARKS</td>
<td>UPPER RESPIRATORY TRACT IRRITATION</td>
<td>TWA</td>
<td>15 mg/m³</td>
<td>USA. OCCUPATIONAL EXPOSURE LIMITS (OSHA) - TABLE Z-1 LIMITS FOR AIR CONTAMINANTS</td>
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<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>USA. OCCUPATIONAL EXPOSURE LIMITS (OSHA) - TABLE Z-1 LIMITS FOR AIR CONTAMINANTS</td>
</tr>
</tbody>
</table>
EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS
GENERAL INDUSTRIAL HYGIENE PRACTICE

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

PERSONAL PROTECTIVE EQUIPMENT

BREATHING EQUIPMENT
WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE
A FULL-FACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR TYPE ABEK
(EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP. IF THE RESPIRATOR IS THE SOLE
MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE
RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE
GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

EYE PROTECTION: USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED
UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166 (EU).
TIGHTLY FITTING SAFETY GOOGLES OR GLASSES OR FACESHIELD.

SKIN PROTECTION: HANDLE WITH GLOVES. THE GLOVE MATERIAL HAS TO BE
IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. AS THE
PRODUCT IS A PREPARATION OF SEVERAL SUBSTANCES, THE RESISTANCE OF THE
GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE
CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE
GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON
PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL. USE
PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE’S OUTER SURFACE)
TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES
AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY
PRACTICES. WASH AND DRY HANDS.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON
QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF
THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.
FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF
THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. CHOOSE BODY PROTECTION IN
RELATION TO ITS TYPE, TO THE CONCENTRATION AND AMOUNT OF DANGEROUS
SUBSTANCES, AND TO THE SPECIFIC WORK-PLACE. THE TYPE OF PROTECTIVE
EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT
OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

CONTROL OF ENVIRONMENTAL EXPOSURE
DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE
AVOIED.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LIQUID
COLOR: DARK PURPLE
ODOR: NO DATA AVAILABLE

SAFETY DATA
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
IGNITION TEMPERATURE: NO DATA AVAILABLE
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSION LIMIT: NO DATA AVAILABLE
UPPER EXPLOSION LIMIT: NO DATA AVAILABLE
VAPOR PRESSURE: NO DATA AVAILABLE
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

CONDITIONS TO BE AVOIDED: NO DATA AVAILABLE

INCOMPATIBLE MATERIALS: STRONG BASES, BASES, OXIDIZING AGENTS, STRONG
OXIDIZING AGENTS, METALS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: NO DATA AVAILABLE. IN EVENT OF FIRE,
SEE SECTION 5
SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
LD50 ORAL : NO DATA AVAILABLE

INHALATION LC50
LC50 INHALATION: NO DATA AVAILABLE

DERMAL LD50
LD50 DERMAL: NO DATA AVAILABLE

SKIN IRRITATION AND CORROSION
NO DATA AVAILABLE

SERIOUS EYE DAMAGE/EYE IRRITATION
NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

GERM CELL MUTAGENICITY

NO DATA AVAILABLE

CARCINOGENICITY

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

REPRODUCTIVE TOXICITY
NO DATA AVAILABLE

TERATOGENICITY

NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY –SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

NO DATA AVAILABLE

ASPIRATION HAZARD

NO DATA AVAILABLE

SIGNS AND SYMPTOMS OF EXPOSURE

NO DATA AVAILABLE

SYNERGISTIC EFFECTS

NO DATA AVAILABLE

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

NO DATA AVAILABLE

PERSISTENCE AND DEGRADABILITY

NO DATA AVAILABLE

BIOACCUMULATIVE POTENTIAL

NO DATA AVAILABLE

MOBILITY IN SOIL

NO DATA AVAILABLE

PBT AND vPvB ASSESSMENT

NO DATA AVAILABLE

OTHER ADVERSE EFFECTS

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERSAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT
WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

THIS PRODUCT IS SUBJECT TO THE DE MINIMIS EXCEPTIONS FOR DANGEROUS GOODS/HAZARDOUS MATERIALS IN ACCORDANCE WITH THE FOLLOWING REGULATIONS: IATA 2.6.10, ADR 3.5.1.4, AND U.S. DOT 49 CFR 173.4b.

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)

NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)
SECTION 313:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
ACUTE HEALTH HAZARD, CHRONIC HEALTH HAZARD

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL
MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: GL50

NAME: PRECISION RED ADVANCED PROTEIN ASSAY

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

EMERGENCY CONTACT:
24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

NOTE: PRODUCT CONTAINS 4% METHANOL. THIS CONCENTRATION IS NOT CONSIDERED
HAZARDOUS DUE TO THE ABSENCE OF A FLASHPOINT AT THIS LOW CONCENTRATION.

THE INFORMATION BELOW IS BASED ON A METHANOL CONCENTRATION WITH A
FLASHPOINT AND CONCENTRATION >4%. APPROPRIATE LABORATORY PRACTICES AND
CAUTION SHOULD STILL BE EXERCISED.

EMERGENCY OVERVIEW

OSHA HAZARDS
TARGET ORGAN EFFECT, HARMFUL BY INHALATION, HARMFUL BY INGESTION,
HARMFUL BY SKIN ABSORPTION, IRRITANT

TARGET ORGANS
EYES, KIDNEY, LIVER, HEART, CENTRAL NERVOUS SYSTEM, EYES, KIDNEY, LIVER,
HEART

GHS CLASSIFICATION
ACUTE TOXICITY, ORAL (CATEGORY 3)
ACUTE TOXICITY, INHALATION (CATEGORY 3)
ACUTE TOXICITY, DERMAL (CATEGORY 3)
SKIN IRRITATION (CATEGORY 2)
EYE IRRITATION (CATEGORY 2A)
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 1)
GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM

SIGNAL WORD  DANGER

HAZARD STATEMENT(S)
H301+H311  TOXIC IF SWALLOWED OR IN CONTACT WITH SKIN
H315  CAUSES SKIN IRRITATION
H319  CAUSES SERIOUS EYE IRRITATION
H331  TOXIC IF INHALED
H370  CAUSES DAMAGE TO ORGANS

PRECAUTIONARY STATEMENT(S)
P260  DO NOT BREATHE DUST/FUME/GAS/MIST/VAPORS/SPRAY
P280  WEAR PROTECTIVE GLOVES/PROTECTIVE CLOTHING
P301+P310  IF SWALLOWED: IMMEDIATELY CALL A POISON CENTER OR DOCTOR PHYSICIAN
P305+P351+P338  IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES IF PRESENT AND EASY TO DO. CONTINUE RINSING
P307+P311  IF EXPOSED: CALL A POISON CENTER OR DOCTOR/PHYSICIAN

NFPA RATINGS (SCALE 0-4)
FIRE = 2
HEALTH = 2
REACTIVITY = 0

HMIS CLASSIFICATION
FIRE = 2
HEALTH = 2
CHRONIC HEALTH HAZARD = *
PHYSICAL HAZARDS = 0

POTENTIAL HEALTH EFFECTS

INHALATION  HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION
SKIN  HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION
EYES  CAUSES EYE IRRITATION
INGESTION  HARMFUL IF SWALLOWED

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

DESCRIPTION: MIXTURE OF THE SUBSTANCES LISTED BELOW WITH HARMLESS CHEMICALS (<1%) THAT ARE PROPRIETARY

METHYL ALCOHOL  CAS#: 67-56-1
EINECS: 200-659-6
SECTION 4.  FIRST-AID MEASURES

GENERAL ADVICE: CONSULT A PHYSICIAN AND SHOW THIS MSDS TO THE PHYSICIAN
AFTER INHALATION: IF BREATHED IN, SUPPLY FRESH AIR. IF NOT BREATHING, GIVE
ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN
AFTER SKIN CONTACT: IMMEDIATELY RINSE WITH SOAP AND PLENTY OF WATER.
TAKE VICTIM IMMEDIATELY TO HOSPITAL. CONSULT A PHYSICIAN
AFTER EYE CONTACT: RINSE OPENED EYE FOR SEVERAL MINUTES UNDER RUNNING
WATER. THEN CONSULT PHYSICIAN
AFTER SWALLOWING: DO NOT INDUCE VOMITING. DO NOT GIVE ANYTHING BY
MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CALL FOR
PHYSICIAN

SECTION 5.  FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY
FLAMMABLE IN THE PRESENCE OF A SOURCE OF IGNITION WHEN THE TEMPERATURE IS
ABOVE THE FLASH POINT. KEEP AWAY FROM HEAT/SPARKS/OPEN FLAME/HOT
SURFACE. NO SMOKING.

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: CARBON DIOXIDE, EXTINGUISHING POWDER OR
WATER SPRAY. FIGHT LARGER FIRES WITH WATER SPRAY OR ALCOHOL RESISTANT
FOAM.

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE
PREVENT CONTACT WITH SKIN AND EYES

HAZARDOUS COMBUSTION PRODUCTS
HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON
OXIDES

LOWER EXPLOSIVE LIMIT (LEL) FOR METHANOL IS 6%

SECTION 6.  ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY
PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY
GOGGLES, RUBBER GLOVES. AVOID BREATHING VAPORS, MIST, OR GAS. ENSURE
ADEQUATE VENTILATION. REMOVE ALL SOURCES OF IGNITION.
ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW
TO ENTER SEWERS/SURFACE OR GROUND WATER. PREVENT FURTHER LEAKAGE OR
SPILLS IF SAFE TO DO SO
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: ABSORB WITH
LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS,
SAWDUST). USE NEUTRALIZING AGENT. DISPOSE CONTAMINATED MATERIAL AS WASTE ACCORDING TO SECTION 13. ENSURE ADEQUATE VENTILATION.  
REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOR OR MIST. ENSURE GOOD VENTILATION AND EXHAUSTION AT THE WORKPLACE.
INFORMATION ABOUT PROTECTION AGAINST EXPLOSIONS AND FIRES: KEEP AWAY FROM SOURCES OF IGNITION. NO SMOKING. TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE.
REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 2-8°C.
INFORMATION ABOUT STORAGE IN ONE COMMON STORAGE FACILITY: NO SPECIAL PRECAUTIONS ARE NECESSARY. KEEP TIGHTLY CLOSED.
FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH LIMIT VALUES THAT REQUIRE MONITORING AT THE WORKPLACE:

67-56-1 METHANOL

<table>
<thead>
<tr>
<th>VALUE</th>
<th>CONTROL PARAMETERS</th>
<th>BASIS</th>
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</thead>
<tbody>
<tr>
<td>TWA</td>
<td>200 PPM</td>
<td>USA. ACGIH THRESHOLD LIMIT VALUES</td>
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<tr>
<td>STEL</td>
<td>250 PPM</td>
<td>USA. ACGIH THRESHOLD LIMIT VALUES</td>
</tr>
<tr>
<td>TWA</td>
<td>200 PPM, 260 mg/m3</td>
<td>USA. OSHA-TABLE Z-1 LIMITS FOR AIR CONTAMINANTS-1910.1000</td>
</tr>
<tr>
<td>STEL</td>
<td>250 PPM, 325 mg/m3</td>
<td>USA. OSHA-TABLE Z-1 LIMITS FOR AIR CONTAMINANTS-1910.1000</td>
</tr>
<tr>
<td>TWA</td>
<td>200 PPM, 260 mg/m3</td>
<td>USA. OCCUPATIONAL EXPOSURE LIMITS (OSHA)-TABLE Z-1 LIMITS FOR AIR CONTAMINANTS</td>
</tr>
<tr>
<td>TWA</td>
<td>200 PPM, 260 mg/m3</td>
<td>USA. NIOSH RECOMMENDED EXPOSURE LIMITS</td>
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<tr>
<td>ST</td>
<td>250 PPM, 325 mg/m3</td>
<td>USA. NIOSH RECOMMENDED EXPOSURE LIMITS</td>
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</table>

PERSONAL PROTECTIVE EQUIPMENT
GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES, SKIN, AND CLOTHING
BREATHING EQUIPMENT
WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE, USE A FULL-FACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR TYPE AXBEK (EN14387) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR.

DO NOT BREATHE. USE MECHANICAL EXHAUST SYSTEM

PROTECTION OF HANDS
PROTECTIVE GLOVES.
THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOGGLES AND FACE SHIELD.

BODY PROTECTION: PROTECTIVE WORK CLOTHING

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LIQUID
COLOR: DARK RED
ODOR: DISTINCTIVE
pH-VALUE AT 20°C: 3.0
CHANGE IN CONDITION
MELTING POINT/MELTING RANGE: UNDETERMINED
BOILING POINT/BOILING RANGE: UNDETERMINED
FLASH POINT: NOT DETERMINED.
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE. HOWEVER, FLAMMABLE VAPOR BUILD-UP IS POSSIBLE. KEEP AREA WELL-VENTILATED.
DENSITY: NOT DETERMINED
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCIBLE
SOLVENT CONTENT:
   ORGANIC SOLVENTS: 4%
   WATER: 96%
SEE SECTION 10.

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS AND MATERIALS TO BE AVOIDED: NO DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS. AVOID HEAT, SPARKS, AND FLAMES AND EXTREMES OF TEMPERATURE AND DIRECT SUNLIGHT. AVOID CHLORIDES, ACID ANHYDRIDES, OXIDIZING AGENTS, ALKALI METALS, REDUCING AGENTS, AND ACIDS.

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS - CARBON OXIDES

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY:
PRIMARY IRRITANT EFFECT:
ON THE SKIN: CAUSTIC EFFECT ON SKIN AND MUCOUS MEMBRANES
ON THE EYE: STRONG CAUSTIC EFFECT.
SENSITIZATION: NO SENSITIZING EFFECTS KNOWN
ADDITIONAL TOXICOLOGICAL INFORMATION:
SWALLOWING WILL LEAD TO A STRONG CAUSTIC EFFECT ON MOUTH AND THROAT AND TO THE DANGER OF PERFORATION OF ESOPHAGUS AND STOMACH.

LD/LC50 VALUES FOR HAZARDOUS COMPONENTS PER OSHA CRITERIA:
67-56-1 METHANOL
ORAL    LD50  5628 MG/KG (RAT)
DERMAL  LD50  20000 MG/KG (RAT)
DERMAL  LD50  15,800 MG/KG (RABBIT)
INHALATION LC50  64000 PPM (RAT) 4 HOURS
INHALATION LC50  87.6 mg/l (RAT) 4 HOURS

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP, OR OSHA.

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (GHS)
CAUSES DAMAGE TO ORGANS
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (GHS)
NO DATA AVAILABLE

POTENTIAL HEALTH EFFECTS

INHALATION HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION
SKIN HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION
EYES CAUSES EYE IRRITATION
INGESTION HARMFUL IF SWALLOWED

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

TOXICITY TO FISH

LC50 - ONCORHYNCHUS MYKISSL (RAINBOW TROUT) - 19,000 mg/l - 96 HOURS
MORTALITY LC50 - LEPOMIS MACROCHIRUS (BLUEGILL) - 15,400 mg/l - 96 HOURS

TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES

EC50 - DAPHNIA MAGNA (WATER FLEA) - 24,500 mg/l - 48 HOURS
EC100 - DAPHNIA MAGNA (WATER FLEA) - 10,000 mg/l - 24 HOURS

TOXICITY TO ALGAE

GROWTH INHIBITION EC50 - SCENEDESMDUS CAPRICORNUTUM (FRESH WATER ALGAE) - 22,000 mg/l - 96 HOURS

GENERAL NOTES:
DO NOT POUR UNDILUTED PRODUCT OR LARGE QUANTITIES INTO DRAINS OR ALLOW TO REACH GROUND WATER, WATER COURSE OR SEWAGE SYSTEM.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
RECOMMENDATION: MUST NOT BE DISPOSED OF TOGETHER WITH HOUSEHOLD GARBAGE. DO NOT ALLOW PRODUCT TO REACH SEWAGE SYSTEM.
UNCLEANED PACKAGINGS:
RECOMMENDATION: DISPOSAL MUST BE MADE ACCORDING TO OFFICIAL REGULATIONS. USE A LICENSED DISPOSAL COMPANY.
RECOMMENDED CLEANSING AGENT: WATER, IF NECESSARY WITH CLEANSING AGENTS. HAND OVER TO HAZARDOUS WASTE DISPOSERS.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

NOTE: PRODUCT CONTAINS 4% METHANOL. THIS CONCENTRATION IS NOT CONSIDERED HAZARDOUS DUE TO THE ABSENCE OF A FLASHPOINT AT THIS LOW CONCENTRATION.
SHIPPED IN A SEALED BOTTLE WITH THICK ABSORBENT PAPER.

IF METHANOL CONTENT WERE TO BE OF A SUFFICIENT CONCENTRATION TO HAVE A FLASHPOINT AND BE CONSIDERED HAZARDOUS, TRANSPORT INFORMATION WOULD BE:

DOT CLASSIFICATION: CLASS 3 (6.1): FLAMMABLE LIQUID, TOXIC
UN NUMBER: 1230
PACKING GROUP: II

IATA-DGR CLASSIFICATION: CLASS 3 (6.1): FLAMMABLE LIQUID, TOXIC
UN NUMBER: 1230
PACKING GROUP: II

IMDG CLASSIFICATION: CLASS 3 (6.1): FLAMMABLE LIQUID, TOXIC
UN NUMBER: 1230
PACKING GROUP: II

SECTION 15. REGULATORY INFORMATION

OSHA HAZARDS
TARGET ORGAN EFFECT, HARMFUL BY INHALATION, HARMFUL BY INGESTION, HARMFUL BY SKIN ABSORPTION, IRRITANT

NONE OF THE INGREDIENTS IS LISTED.

SARA 313 COMPONENTS
THE FOLLOWING COMPONENTS ARE SUBJECT TO REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313
METHANOL – CAS # 67-56-1

SARA 311/312 HAZARDS
ACUTE HEALTH HAZARD, CHRONIC HEALTH HAZARD

EU REGULATORY INFORMATION
THIS MATERIAL IS CLASSIFIED AS DANGEROUS ACCORDING TO DIRECTIVE 67/548.EEC AND ITS AMENDMENTS

TSCA (TOXIC SUBSTANCES CONTROL ACT):
ALL INGREDIENTS ARE LISTED.

CARCINOGENIC CATEGORIES
EPA (ENVIRONMENTAL PROTECTION AGENCY)
NONE OF THE INGREDIENTS IS LISTED.

IARC (INTERNATIONAL AGENCY FOR RESEARCH ON CANCER)
NONE OF THE INGREDIENTS IS LISTED.
TLV (THRESHOLD LIMIT VALUE ESTABLISHED BY ACGIH)
NONE OF THE INGREDIENT IS LISTED.

MAK (GERMAN MAXIMUM WORKPLACE CONCENTRATION)
NONE OF THE INGREDIENTS IS LISTED.

NIOSH-CA (NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH)
NONE OF THE INGREDIENTS IS LISTED.

OSHA-CA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
NONE OF THE INGREDIENTS IS LISTED.

MARKINGS ACCORDING TO EU GUIDELINES:
NOT HARMFUL

CODE LETTER AND HAZARD DESIGNATION OF PRODUCT:
XN HARMFUL

HAZARD-DETERMINING COMPONENTS OF LABELING:
METHANOL

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: CLASS D DIV 1B, CLASS D DIV 2B; CLASS B DIV 2

STATE REGULATIONS
MA, NY, NJ, PA, FL

METHANOL IS LISTED (CAS # 67-56-1)

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: PIC02

NAME: PROTEASE INHIBITOR COCKTAIL

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS
IRRITANT

GHS CLASSIFICATION
SKIN IRRITATION (CATEGORY 2)
EYE IRRITATION (CATEGORY 2A)
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3)
ACUTE TOXICITY, ORAL (CATEGORY 5)

PICTOGRAM

WARNING

HAZARD STATEMENTS
H303 MAY BE HARMFUL IF SWALLOWED
H315 CAUSES SKIN IRRITATION
H319 CAUSES SERIOUS EYE IRRITATION
H335 MAY CAUSE RESPIRATORY IRRITATION

PRECAUTIONARY STATEMENTS
P261 AVOID BREATHING DUST/FUME/GAS/MIST/VAPORS/SPRAY
P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES.
REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.
NFPA RATINGS (SCALE 0-4)
FIRE = 0
HEALTH = 2
REACTIVITY = 0

HMIS RATINGS
HEALTH = 2
FIRE = 0
REACTIVITY = 0

POTENTIAL HEALTH EFFECTS
INHALATION MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION.
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION.
EYES CAUSES EYE IRRITATION.
INGESTION MAY BE HARMFUL IF SWALLOWED.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

BENZAMIDINIUM CHLORIDE CAS#: 206752-36-5
EC#: 216-795-4
SYNONYMS: AMIDINOBENZENE HYDROCHLORIDE, BENZAMIDINIUM CHLORIDE, BENZENECARBOXIMIDAMIDE HYDROCHLORIDE
FORMULA: C₇H₈N₂ ClH₂O
MOLECULAR WEIGHT: 156.61 g/mol

PEPSTATIN A CAS#: 26305-03-3
EC#: 247-600-0
FORMULA: C₁₅H₁₆N₅O₅C₃H₆N₅O₉
MOLECULAR WEIGHT: 685.89 g/mol

LEUPEPTIN HYDROCHLORIDE CAS#: 24125-16-4
FORMULA: C₂₀H₃₈N₆O₄ HCl
MOLECULAR WEIGHT: 463.01 g/mol

Nα-p-TOSYL-L-ARGININE METHYL ESTER HYDROCHLORIDE CAS#: 1784-03-8
FORMULA: C₁₄H₂₂N₄O₄S HCl
MOLECULAR WEIGHT: 378.87 g/mol

SECTION 4. FIRST-AID MEASURES
GENERAL ADVICE: CONSULT A PHYSICIAN. SHOW THIS SAFETY DATASHEET TO THE PHYSICIAN. MOVE OUT OF DANGEROUS AREA.
AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. CONSULT A PHYSICIAN.
AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. CONSULT A PHYSICIAN
AFTER SWALLOWING: WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE RE-USE.

SECTION 5. FIREFIGHTING MEASURES

CONDITIONS OF FLAMMABILITY: NOT FLAMMABLE OR COMBUSTIBLE

EXTINGUISHING MEDIA
SUITSABLE EXTINGUISHING AGENTS: CARBON DIOXIDE, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR WATER SPRAY.

ADVICE FOR FIREFIGHTERS
PROTECTIVE EQUIPMENT: WEAR SELF-CONTAINED BREATHING APPARATUS FOR FIRE FIGHTING IF NECESSARY
HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES, HYDROGEN CHLORIDE GAS

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: AVOID DUST FORMATION AND AVOID BREATHING VAPORS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES.
ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER.
METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: IN POWDER FORM, SWEEP UP AND SHOVEL. AFTER RECONSTITUTION, ABSORB WITH LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS, SAWDUST). DISPOSE CONTAMINATED MATERIAL AS WASTE ACCORDING TO SECTION 13. ENSURE ADEQUATE VENTILATION.
REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING
PRECAUTIONS FOR SAFE HANDLING: AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS. ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

STORAGE REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 2-8°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE. STORE DESICCATED. HYGROSCOPIC.
FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED IN A DRY AND WELL-VENTILATED PLACE.

SECTION 8. EXPOSURE CONTROLS/PERSOAL PROTECTION

NO SUBSTANCES ARE PRESENT THAT REQUIRE MONITORING

PERSONAL PROTECTIVE EQUIPMENT

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN. DO NOT BREATHE DUST.

BREATHING EQUIPMENT
FOR SHORT TERM FILTER DEVICE TO PROTECT FROM NUISANCE LEVELS OF DUST, USE TYPE N95 OR TYPE P1 DUST MASKS. FOR HIGHER LEVEL PROTECTION, USE TYPE OV/AG/P99 OR ABEK-P2 RESPIRATOR CARTRIDGES.

PROTECTION OF HANDS

PROTECTIVE GLOVES.
THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE PRODUCT/SUBSTANCE/PREPARATION. THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF DIFFUSION AND DEGRADATION OF MATERIAL.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOGGLES OR SAFETY GLASSES WITH SIDE-SHIELDS

BODY PROTECTION: PROTECTIVE WORK CLOTHING
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

GENERAL INFORMATION

FORM: SOLID (LYOPHILIZED POWDER)
COLOR: OFF-WHITE
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
IGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSIVE LIMIT: NO DATA AVAILABLE
UPPER EXPLOSIVE LIMIT: NO DATA AVAILABLE
VAPOR PRESSURE: NO DATA AVAILABLE
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY

CHEMICAL STABILITY: STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: AVOID ALKALINES, STRONG ACIDS AND STRONG BASES, STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES, SULPHUR OXIDES, HYDROGEN CHLORIDE GAS

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY:
LD50 ORAL: NO DATA AVAILABLE

INHALATION LC50 AND DERMAL LD50:
NO DATA AVAILABLE

SKIN CORROSION/IRRITATION:
NO DATA AVAILABLE

SERIOUS EYE DAMAGE/EYE IRRITATION:
NO DATA AVAILABLE

**RESPIRATORY OR SKIN SENSITIZATION:**
NO DATA AVAILABLE

**GERM CELL MUTAGENICITY:**
NO DATA AVAILABLE

**CARCINOGENICITY**
NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

**REPRODUCTIVE TOXICITY:**
NO DATA AVAILABLE

**SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM):**
INHALATION - MAY CAUSE RESPIRATORY IRRITATION

**SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM):**
NO DATA AVAILABLE

**ASPIRATION HAZARD**
NO DATA AVAILABLE

**POTENTIAL HEALTH EFFECTS**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>INHALATION</td>
<td>MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION.</td>
</tr>
<tr>
<td>SKIN</td>
<td>MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION.</td>
</tr>
<tr>
<td>EYES</td>
<td>CAUSES EYE IRRITATION.</td>
</tr>
<tr>
<td>INGESTION</td>
<td>MAY BE HARMFUL IF SWALLOWED.</td>
</tr>
</tbody>
</table>

**SECTION 12. ECOLOGICAL INFORMATION**

**TOXICITY**
NO DATA AVAILABLE

**PERSISTENCE AND DEGRADABILITY**
NO DATA AVAILABLE

**BIOACCUMULATIVE POTENTIAL**
NO DATA AVAILABLE

**MOBILITY IN SOIL**
NO DATA AVAILABLE

**PBT AND vPvB ASSESSMENT**
SECTION 13. DISPOSAL CONSIDERATIONS
WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERsal OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

OSHA HAZARDS
IRRITANT

DSL STATUS
THIS PRODUCT CONTAINS THE FOLLOWING COMPONENTS THAT ARE NOT ON THE CANADIAN DSL NOR NDSL LISTS

LEUPEPTIN HYDROCHLORIDE CAS #: 24125-16-4

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)

NONE OF THE INGREDIENTS ARE LISTED.

SARA 313 COMPONENTS:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA, TITLE III, SECTION 313.

SARA 311/312 HAZARDS

ACUTE HEALTH HAZARD
PA AND NJ RIGHT TO KNOW COMPONENTS

BENZAMIDINUM CHLORIDE      CAS #: 206752-36-5
PEPSTATIN A                 CAS #: 26305-03-3
LEUPEPTIN HYDROCHLORIDE     CAS #: 24125-16-4
Naα–p-TOSYL-L-ARGININE METHYL CAS#: 1784-03-8
ESTER HYDROCHLORIDE

CALIFORNIA PROP. 65 COMPONENTS

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: CLRA (CLEAR BOTTLE) and CLRB (BROWN BOTTLE)

NAME: HRP DETECTION REAGENT A (CLRA) AND HRP DETECTION REAGENT B (CLRB)

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS
THESE REAGENTS ARE NOT CONSIDERED HAZARDOUS BY THE OSHA HAZARD

TARGET ORGANS
NONE

GHS CLASSIFICATION
NONE

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM   NONE

SIGNAL WORD   NONE

HAZARD STATEMENT(S)

THERE ARE NO KNOWN HAZARDS.

PRECAUTIONARY STATEMENT(S)

THERE ARE NO APPLICABLE PRECAUTIONARY STATEMENTS.
HMIS CLASSIFICATION (SCALE 0-4)

HEALTH HAZARD = 0
CHRONIC HEALTH HAZARD =
FLAMMABILITY = 0
PHYSICAL HAZARDS = 0

NFPA RATINGS (SCALE 0-4)
FIRE = 0
HEALTH = 0
REACTIVITY = 0

POTENTIAL HEALTH EFFECTS

INHALATION  EXPOSURE TO DECOMPOSITION PRODUCTS MAY CAUSE A HEALTH HAZARD. SERIOUS EFFECTS MAY BE DELAYED FOLLOWING EXPOSURE (PART# CLRB). FOR PART# CLRA, NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS
SKIN  NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS
EYES  NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS
INGESTION  NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

THESE REAGENTS (CLRA AND CLRB) ARE COMPRised OF PROPRIETARY CHEMICALS THAT ARE NOT HAZARDOUS.

SECTION 4. FIRST-AID MEASURES

GENERAL ADVICE
CONSULT A PHYSICIAN. SHOW THIS MSDS TO THE PHYSICIAN. NOTE: IN CASE OF INHALATION OF DECOMPOSITION PRODUCTS IN A FIRE, SYMPTOMS MAY BE DELAYED. THE EXPOSED PERSON MAY NEED TO BE KEPT UNDER MEDICAL CARE FOR 48 HOURS (PART# CLRB).

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, IF BREATHING IS IRREGULAR OR IF RESPIRATORY ARREST OCCURS, PROVIDE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN
AFTER SKIN CONTACT: RINSE WITH PLENTY OF SOAP AND WATER FOR AT LEAST 15 MINUTES. CONSULT PHYSICIAN
AFTER EYE CONTACT: REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. CONSULT PHYSICIAN.
AFTER SWALLOWING: RINSE MOUTH WITH WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. CONSULT PHYSICIAN

REMOVE AND WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES
EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING AGENTS: USE DRY CHEMICAL (EXTINGUISHING) POWDER, WATER SPRAY, CARBON DIOXIDE, OR ALCOHOL RESISTANT FOAM.

ADVICE FOR FIREFIGHTERS

PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE AND FULL PROTECTIVE GEAR

HAZARDOUS COMBUSTION PRODUCTS: PART# CLRB: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS – CARBON DIOXIDE, CARBON MONOXIDE, NITROGEN OXIDES; PART# CLRA: NO DATA AVAILABLE

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, CHEMICAL SAFETY GOGGLES, RUBBER GLOVES, DUST MASK, BOOTS. IF DRY MATERIAL, AVOID DUST FORMATION. AVOID BREATHING DUST, VAPORS, MIST OR GAS. INSURE ADEQUATE VENTILATION. ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: ABSORB WITH LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS, SAWDUST). IN DRY FORM, SWEEP UP AND SHOVEL INTO SUITABLE CONTAINER FOR DISPOSAL. DISPOSE CONTAMINATED MATERIAL AS WASTE ACCORDING TO SECTION 13. ENSURE ADEQUATE VENTILATION. REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING

PRECAUTIONS FOR SAFE HANDLING: ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. AVOID FORMATION OF DUST AND AEROSOLS. AVOID INHALATION OF VAPOR OR MIST. AVOID CONTACT WITH SKIN AND EYES. INFORMATION ABOUT PROTECTION AGAINST EXPLOSIONS AND FIRES: KEEP CONTAINER TIGHTLY CLOSED AND STORED IN A COOL, WELL-VENTILATED AREA. REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT 2-8°C. INFORMATION ABOUT STORAGE IN ONE COMMON STORAGE FACILITY: NO SPECIAL PRECAUTIONS ARE NECESSARY. KEEP TIGHTLY CLOSED AND IN A DRY, WELL-VENTILATED PLACE. FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES

GENERAL INFORMATION

PERSONAL PROTECTIVE EQUIPMENT
GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK

BREATHING EQUIPMENT
WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE,
USE A FULL-FACE RESPIRATOR TYPE N100 (US) OR TYPE P3 (EN 143) RESPIRATOR
CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE
SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE
PRODUCTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS
SUCH AS NIOSH (US) OR CEN (EU).

PROTECTION OF HANDS
PROTECTIVE GLOVES.
THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE
PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF
SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE
CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO
APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR
THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF
DIFFUSION AND DEGRADATION OF MATERIAL.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON
QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK THROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF
THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF
THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOGGLES AND FACE SHIELD. USE EYE
PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS
SUCH AS NIOSH (US) OR EN 166 (EU).

BODY PROTECTION: PROTECTIVE WORK CLOTHING

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LIQUID
COLOR: COLORLESS
ODOR: UNDETERMINED
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: NO DATA AVAILABLE
BOILING POINT/BOILING RANGE: NO DATA AVAILABLE
FLASH POINT: NO DATA AVAILABLE
SELF-IGNITING: NO DATA AVAILABLE
DANGER OF EXPLOSION: NO DATA AVAILABLE
DENSITY: NO DATA AVAILABLE
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCEBLE

SEE SECTION 10.

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS DIRECTED

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DATA AVAILABLE

POSSIBILITY OF HAZARDOUS REACTIONS: UNDER NORMAL CONDITIONS OF STORAGE AND USE, HAZARDOUS DECOMPOSITION PRODUCTS SHOULD NOT BE PRODUCED.

MATERIALS TO AVOID: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: UNDER NORMAL CONDITIONS OF STORAGE AND USE, HAZARDOUS DECOMPOSITION PRODUCTS SHOULD NOT BE PRODUCED. HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS – NO DATA AVAILABLE

SECTION 11. TOXICOLOGICAL INFORMATION

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
ORAL LD50 (PART# CLRA)
SPECIES DOSE
RAT 1200 mg/kg

INHALATION LC50
NO DATA AVAILABLE

DERMAL LD50
NO DATA AVAILABLE

CORROSION/IRRITATION
PART# CLRB
RESULT SPECIES EXPOSURE
SKIN-MODERATE IRRITANT RABBIT 25%
SKIN-SEVERE IRRITANT RABBIT 500 mgs
SKIN-MODERATE IRRITANT WOMAN 1%

PART# CLRA
EYES-MODERATE IRRITANT RABBIT 50 mgs

SERIOUS EYE DAMAGE/EYE IRRITATION
NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

OTHER INFORMATION ON ACUTE TOXICITY
NO DATA AVAILABLE

GERM CELL MUTAGENICITY
NO DATA AVAILABLE
IN VITRO TESTS SHOWED MUTAGENIC EFFECTS

CARCINOGENICITY
NTP: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR
EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY NTP.
OSHA: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR
EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY OSHA.
IARC: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR
EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY IARC.
IARC: 3 - GROUP 3: NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY TO HUMANS (1-ETHENYL-2-PYRROLIDINONE HOMOPOLYMER
ACGIH: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR
EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY ACGIH.

REPRODUCTIVE TOXICITY
NO DATA AVAILABLE

TERATOGENICITY
NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)
PART# CLRA AND CLRB
CATEGORY ROUTE OF EXPOSURE TARGET ORGANS
3 NOT APPLICABLE RESPIRATORY TRACT IRRITATION

ASPIRATION HAZARD
NO DATA AVAILABLE

POTENTIAL HEALTH EFFECTS

INHALATION EXPOSURE TO DECOMPOSITION PRODUCTS MAY CAUSE A HEALTH
HAZARD. SERIOUS EFFECTS MAY BE DELAYED FOLLOWING
EXPOSURE (PART# CLRB); PART# CLRA: NO KNOWN SIGNIFICANT
EFFECTS OR CRITICAL HAZARDS
SKIN NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS
EYES NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS
INGESTION NO KNOWN SIGNIFICANT EFFECTS OR CRITICAL HAZARDS

SECTION 12. ECOLOGICAL INFORMATION

PART# RESULT SPECIES EXPOSURE
CLRA ACUTE EC50 6.98 TO 10.68 mg/l FRESH WATER. CRUSTACEANS – CERIODAPHNIA 48 HOURS DUBIA – NEONATE

NO DATA AVAILABLE FOR PART# CLRB

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
RECOMMENDATION: MUST NOT BE DISPOSED OF TOGETHER WITH HOUSEHOLD GARBAGE. DO NOT ALLOW PRODUCT TO REACH SEWAGE SYSTEM. UNCLEANED PACKAGINGS: DISPOSE OF AS UNUSED PRODUCT
RECOMMENDATION: DISPOSAL MUST BE MADE ACCORDING TO OFFICIAL REGULATIONS. OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. DISSOLVE OR MIX MATERIAL WITH COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
RECOMMENDED CLEANSING AGENT: WATER, IF NECESSARY WITH CLEANSING AGENTS.
CONTAMINATED PACKAGING: DISPOSE OF AS UNUSED PRODUCT
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.
IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.
IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

OSHA HAZARDS
NONE

U.S. REGULATORY INFORMATION

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)
NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302

SECTION 313 (40CFR372.65):

FOR PART# CLRB:

<table>
<thead>
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<th>PRODUCT</th>
<th>CAS#</th>
<th>%</th>
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</thead>
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<td>ETHANEDIOL 107-21-1</td>
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<tr>
<td>SUPPLIER NOTIFICATION</td>
<td>ETHANEDIOL 107-21-1</td>
<td>1-3</td>
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</table>

SARA 311/312 HAZARDS
TSCA
FOR PART# CLRB:

TSCA 8(A) PAIR: TETRAHYDROFURAN
TSCA 8(A) CDR EXEMPT/PARTIAL EXEMPTION: NOT DETERMINED
UNITED STATES INVENTORY (TSCA 8B): NOT DETERMINED
CLEAN WATER ACT (CWA) 311: SODIUM HYROXIDE

MA AND NY RIGHT TO KNOW COMPONENTS
THE FOLLOWING COMPONENTS ARE LISTED: ETHYLENE GLYCOL (PART# CLRB)

PA AND NJ RIGHT TO KNOW COMPONENTS
THE FOLLOWING COMPONENTS ARE LISTED: ETHYLENE GLYCOL; 1,2-ETHANEDIOL
(PART# CLRB)

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT (PART# CLRB) CONTAINS LESS THAN 0.1% OF A CHEMICAL KNOWN TO
THE STATE OF CALIFORNIA TO CAUSE CANCER. PART# CLRA DOES NOT CONTAIN ANY
CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR
ANY OTHER REPRODUCTIVE HARM.

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<tr>
<th>INGREDIENT</th>
<th>CANCER</th>
<th>REPRODUCTIVE</th>
<th>NO SIGNIFICANT RISK LEVEL</th>
<th>MAX ACCEPTABLE DOSAGE LEVEL</th>
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<tr>
<td>1,3-PROPANESULTONE</td>
<td>YES</td>
<td>NO</td>
<td>0.3 ug/day INGEST OR INHALE</td>
<td>NO</td>
</tr>
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</table>

SECTION 16. OTHER INFORMATION

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL
NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL
NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP. THE ABOVE
INFORMATION IS BELIEVED TO BE CORRECT, BE ALL INCLUSIVE AND SHALL BE USED
ONLY AS A GUIDE. CYTOSKELETON INC. SHALL NOT BE HELD LIABLE FOR ANY
DAMAGE RESULTING FROM CONTACT WITH THE ABOVE PRODUCT.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: DMSO

NAME: DIMETHYL SULFOXIDE (DMSO)

USE: LABORATORY CHEMICALS

MANUFACTURER/SUPPLIER:

CYTOSKELETON INC.
1830 S. Acoma St.
Denver, CO 80223
PHONE: 303-322-2254
FAX: 303-322-2257

24H EMERGENCY TOLL-FREE NUMBER: CALL INFOTRAC DAY OR NIGHT
WITHIN USA AND CANADA: 1-800-535-5053
OUTSIDE USA AND CANADA: +1 352-323-3500 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS
COMBUSTIBLE LIQUID, TARGET ORGAN EFFECT

TARGET ORGANS
EYES, SKIN

GHS CLASSIFICATION
FLAMMABLE LIQUIDS (CATEGORY 4)

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM: NONE
SIGNAL WORD: WARNING

HAZARD STATEMENTS
H227 COMBUSTIBLE LIQUID

PRECAUTIONARY STATEMENTS
NONE

NFPA RATINGS (SCALE 0-4)
FIRE = 2
HEALTH = 0
REACTIVITY = 0

HMIS RATINGS
HEALTH = 0
FIRE = 2
REACTIVITY = 0
CHRONIC HEALTH HAZARD = *

POTENTIAL HEALTH EFFECTS

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.
SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES: MAY CAUSE EYE IRRITATION.
INGESTION: MAY BE HARMFUL IF SWALLOWED.
AGGRAVATED: AVOID CONTACT WITH DMSO SOLUTIONS CONTAIN MEDICAL CONDITION TOXIC MATERIALS OR MATERIALS WITH UNKNOWN TOXICOLOGICAL PROPERTIES. DMSO IS READILY ABSORBED THROUGH SKIN AND MAY CARRY SUCH MATERIALS INTO THE BODY.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

DIMETHYL SULFOXIDE

FORMULA: C₂H₆OS
MOLECULAR WEIGHT: 78.13 g/mol

CAS #: 67-68-5
ECINEC #: 200-664-3

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT PHYSICIAN.
AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. CONSULT PHYSICIAN.
AFTER EYE CONTACT: RINSE OPENED EYE FOR AT LEAST 15 MINUTES UNDER RUNNING WATER. CONSULT PHYSICIAN.
AFTER SWALLOWING: DO NOT INDUCE VOMITING. WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CONSULT PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

EXTINGUISHING MEDIA
SUITABLE EXTINGUISHING AGENTS: FOR SMALL (INCIPIENT) FIRES, USE CARBON DIOXIDE, DRY CHEMICAL OR ALCOHOL-RESISTENT FOAM. FOR LARGE FIRES, APPLY
WATER FROM AS FAR AS POSSIBLE. USE VERY LARGE QUANTITIES (FLOODING) OF WATER APPLIED AS A MIST OR SPRAY; SOLID STREAMS OF WATER MAY BE INEFFECTIVE. COOL ALL AFFECTED CONTAINERS WITH FLOODING QUANTITIES OF WATER.

ADVICE FOR FIREFIGHTERS

PROTECTIVE EQUIPMENT: MOUNT RESPIRATORY PROTECTIVE DEVICE PREVENT CONTACT WITH SKIN AND EYES.

HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, SULPHUR OXIDES

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. REMOVE ALL SOURCES OF IGNITION. BEWARE OF VAPORS ACCUMULATING TO FORM EXPLOSIVE CONCENTRATIONS VAPORS CAN ACCUMULATE IN LOW AREAS. AVOID BREATHING VAPORS, MIST OR GAS.

ENVIRONMENTAL PRECAUTIONS: DILUTE WITH PLENTY OF WATER. DO NOT ALLOW TO ENTER SEWERS/SURFACE OR GROUND WATER. PREVENT FURTHER LEAKAGE IF SAFE TO DO SO.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP: CONTAIN SPILLAGE AND THEN COLLECT WITH AN ELECTRICALLY PROTECTED VACUUM CLEANER OR BY WET-BRUSHING AND PLACE IN CONTAINER FOR DISPOSAL ACCORDING TO LOCAL REGULATIONS (SEE SECTION 13). KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.

REFERENCE TO OTHER SECTIONS: SEE SECTION 8 FOR INFORMATION ON PERSONAL PROTECTION EQUIPMENT. SEE SECTION 13 FOR DISPOSAL INFORMATION.

SECTION 7. HANDLING AND STORAGE

HANDLING

PRECAUTIONS FOR SAFE HANDLING: ENSURE GOOD VENTILATION/EXHAUSTION AT THE WORKPLACE. AVOID INHALATION OF VAPOR OR MIST. KEEP AWAY FROM SOURCES OF IGNITION – NO SMOKING. TAKE MEASURES TO PREVENT THE BUILD-UP OF ELECTROSTATIC CHARGE. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES STORAGE

REQUIREMENTS TO BE MET BY STOREROOMS AND RECEPTACLES: STORE AT ROOM TEMPERATURE. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE IN A DRY AND WELL-VENTILATED PLACE. STORE UNDER INERT GAS. HYGROSCOPIC.

FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

DIMETHYL SULFOXIDE
CAS #: 67-68-5
VALUE: TWA
CONTROL PARAMETERS: 250 ppm
BASIS: USA. WORKPLACE ENVIRONMENTAL EXPOSURE LEVELS (WEEL)

PERSONAL PROTECTIVE EQUIPMENT
GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
WASH HANDS BEFORE BREAKS AND AT THE END OF WORK
IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

BREATHING EQUIPMENT
WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE,
USE A FULL-FACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION OR TYPE ABEK
RESPIRATOR CARTRIDGES AS A BACK-UP TO ENGINEERING CONTROLS. IF THE
RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR
RESPIRATOR.

PROTECTION OF HANDS
PROTECTIVE GLOVES.
THE GLOVE MATERIAL HAS TO BE IMPERMEABLE AND RESISTANT TO THE
PRODUCT/SUBSTANCE/PREPARATION. AS THE PRODUCT IS A PREPARATION OF
SEVERAL SUBSTANCES, THE RESISTANCE OF THE GLOVE MATERIAL CANNOT BE
CALCULATED IN ADVANCE AND THEREFORE HAS TO BE CHECKED PRIOR TO
APPLICATION. NO RECOMMENDATION CAN BE GIVEN FOR THE GLOVE MATERIAL FOR
THIS PRODUCT. SELECT GLOVE MATERIALS BASE ON PENETRATION TIMES, RATES OF
DIFFUSION AND DEGRADATION OF MATERIAL.

MATERIAL OF GLOVES
THE SELECTION OF SUITABLE GLOVES DEPENDS NOT ONLY ON THE MATERIAL BUT ON
QUALITY OF MATERIAL AND VARIES FROM MANUFACTURER TO MANUFACTURER.

PENETRATION TIME OF GLOVE MATERIAL
THE EXACT BREAK TROUGH TIME HAS TO BE FOUND OUT BY THE MANUFACTURER OF
THE PROTECTIVE GLOVES AND HAS TO BE OBSERVED.

FOR THE PERMANENT CONTACT OF A MAXIMUM OF 15 MINUTES, GLOVES MADE OF
THE FOLLOWING MATERIALS ARE SUITABLE:
NEOPRENE GLOVES

EYE PROTECTION: TIGHTLY SEALED GOGGLES OR SAFETY GLASSES WITH SIDE-
SHIELDS

BODY PROTECTION: PROTECTIVE WORK CLOTHING

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
GENERAL INFORMATION
FORM: LIQUID, CLEAR

SAFETY DATA
pH: NO DATA AVAILABLE
MELTING POINT/MELTING RANGE: 16-19°C (61-66°F)
BOILING POINT/BOILING RANGE: 189°C (372°F)
FLASH POINT: 87°C (189°F) – CLOSED CUP
IGNITION TEMPERATURE: 301°C (574°F)
AUTOIGNITION TEMPERATURE: NO DATA AVAILABLE
LOWER EXPLOSION LIMIT: 3.5% (V)
UPPER EXPLOSION LIMIT: 42% (V)
VAPOR PRESSURE: 0.55 hPa (0.42 mmHg) AT 20°C (68°F)
DENSITY: 1.1 g/ml
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCIBLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: HEAT, FLAMES, SPARKS, ACID CHLORIDES, PHOSPHORUS HALIDES, STRONG ACIDS, STRONG OXIDIZING AGENTS, STRONG REDUCING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

HAZARDOUS DECOMPOSITION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, SULPHUR OXIDES

SECTION 11. TOXICOLOGICAL INFORMATION
INFORMATION ON TOXICOLOGICAL EFFECTS
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ACUTE TOXICITY
LD50 ORAL – RAT - 14,500 mg/kg

INHALATION LC50
LC50 INHALATION – RAT - 4 h - 40250 ppm

DERMAL LD50
LD50 DERMAL – RABBIT - >5,000 mg/kg

SKIN IRRITATION AND CORROSION
SKIN – RABBIT - NO SKIN IRRITATION - 4 h

SERIOUS EYE DAMAGE/EYE IRRITATION
EYES – RABBIT - MILD EYE IRRITATION
RESPIRATORY OR SKIN SENSITIZATION
NO DATA AVAILABLE

GERM CELL MUTAGENICITY

GENOTOXICITY IN VITRO –MOUSE- LYMPHOCYTE
CYTOGENETIC ANALYSIS

GENOTOXICITY IN VITRO –MOUSE- LYMPHOCYTE
MUTATION IN MAMMALIAN SOMATIC CELLS

GENOTOXICITY IN VIVO –RAT- INTRAPERITONEAL
CYTOGENETIC ANALYSIS

GENOTOXICITY IN VIVO –MOUSE- INTRAPERITONEAL
DNA DAMAGE

CARCINOGENICITY

CARCINOGENICITY –RAT- ORAL
TUMORIGENIC: EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA. SKIN AND APPENDAGES: OTHER: TUMORS.

CARCINOGENICITY –MOUSE- ORAL
TUMORIGENIC: EQUIVOCAL TUMORIGENIC AGENT RTECS CRITERIA. LEUKEMIA SKIN AND APPENDAGE: OTHER: TUMORS.

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC, ACGIH, NTP OR OSHA

REPRODUCTIVE TOXICITY

REPRODUCTIVE TOXICITY –RAT- INTRAPERITONEAL
EFFECTS ON FERTILITY: ABORTION
REPRODUCTIVE TOXICITY –RAT- INTRAPERITONEAL
EFFECTS ON FERTILITY: POST-IMPLANTATION MORTALITY (E.G., DEAD AND/OR RESORBED IMPLANTS PER TOTAL NUMBER OF IMPLANTS).
REPRODUCTIVE TOXICITY –RAT- SUBCUTANEOUS
EFFECTS ON FERTILITY: POST-IMPLANTATION MORTALITY (E.G., DEAD AND/OR RESORBED IMPLANTS PER TOTAL NUMBER OF IMPLANTS). EFFECTS ON FERTILITY:
LITTER SIZE (E.G., # FETUSES PER LITTER; MEASURED BEFORE BIRTH).
REPRODUCTIVE TOXICITY –MOUSE- ORAL
EFFECTS ON FERTILITY: PRE-IMPLANTATION MORTALITY (E.G., REDUCTION IN NUMBER OF IMPLANTS PER FEMALE; TOTAL NUMBER OF IMPLANTS PER CORPORA LUTEA).
EFFECTS ON EMBRYO OR FETUS: FETOTOXICITY (EXCEPT DEATH, E.G., STUNTED FETUS). SPECIFIC DEVELOPMENTAL ABNORMALITIES: MUSCULOSKELETAL SYSTEM

TERATOGENICITY

DEVELOPMENTAL TOXICITY –MOUSE- INTRAPERITONEAL
EFFECTS ON EMBRYO OR FETUS: FETOTOXICITY (EXCEPT DEATH, E.G., STUNTED FETUS).
SPECIFIC DEVELOPMENTAL ABNORMALITIES: MUSCULOSKELETAL SYSTEM.

SPECIFIC TARGET ORGAN TOXICITY –SINGLE EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY –REPEATED EXPOSURE (GLOBALLY HARMONIZED SYSTEM)

NO DATA AVAILABLE

ASPIRATION HAZARD

NO DATA AVAILABLE

POSSIBLE HEALTH EFFECTS

INHALATION MAY BE HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE SKIN IRRITATION.
EYES MAY CAUSE EYE IRRITATION.
INGESTION MAY BE HARMFUL IF SWALLOWED.
AGGRAVATED AVOID CONTACT WITH DMSO SOLUTIONS CONTAIN MEDICAL CONDITION TOXIC MATERIALS OR MATERIALS WITH UNKNOWN TOXICOLOGICAL PROPERTIES. DMSO IS READILY ABSORBED THROUGH SKIN AND MAY CARRY SUCH MATERIALS INTO THE BODY.

SIGNS AND SYMPTOMS OF EXPOSURE

EFFECTS DUE TO INGESTION MAY INCLUDE: NAUSEA, FATIGUE, HEADACHE

SYNERGISTIC EFFECTS

NO DATA AVAILABLE

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

TOXICITY TO FISH
LC50 – PIMEPHALES PROMELAS (FATHEAD MINNOW) – 34,000 mg/l – 96 h
LC50 – ONCORHYNCHUS MYKISS (RAINBOW TROUT) -35,000 mg/l -96 h

TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES
EC50 – DAPHNIA PULEX (WATER FLEA) -27,500 mg/l
TOXICITY TO ALGAE
EC50 – LEPOMIS MACROCHIRUS (BLUEGILL) - >400,000 mg/l -96 h

PERSISTENCE AND DEGRADABILITY
NO DATA AVAILABLE

BIOACCUMULATIVE POTENTIAL
NO DATA AVAILABLE

MOBILITY IN SOIL
NO DATA AVAILABLE

PBT AND vPvB ASSESSMENT
NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISPOSAL OF THIS PRODUCT, SOLUTIONS AND ANY BY-PRODUCTS SHOULD AT ALL TIMES COMPLY WITH THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION AND WASTE DISPOSAL LEGISLATION AND ANY REGIONAL LOCAL AUTHORITY REQUIREMENTS. AVOID DISPERAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

DISPOSE OF CONTAMINATED PACKAGING AS UNUSED PRODUCT

SECTION 14. TRANSPORT INFORMATION

THIS PRODUCT IS SUBJECT TO THE DE MINIMIS EXCEPTIONS FOR DANGEROUS GOODS/HAZARDOUS MATERIALS IN ACCORDANCE WITH THE FOLLOWING REGULATIONS: IATA 2.6.10, ADR 3.5.1.4, AND U.S. DOT 49 CFR 173.4b.

DOT CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IATA-DGR CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

IMDG CLASSIFICATION: THIS PRODUCT IS CONSIDERED TO BE NON-HAZARDOUS FOR TRANSPORT.

SECTION 15. REGULATORY INFORMATION

OSHA HAZARDS
COMBUSTIBLE LIQUID, TARGET ORGAN EFFECT
UNITED STATES REGULATORY INFORMATION


NONE OF THE INGREDIENTS IS LISTED.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA) SECTION 313:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS
FIRE HAZARD, CHRONIC HEALTH HAZARD

PA AND NJ RIGHT TO KNOW COMPONENTS
DIMETHYL SULFOXIDE CAS #: 67-68-5

CALIFORNIA PROP. 65 COMPONENTS
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: NOT CONTROLLED UNDER WHMIS.

EU REGULATORY INFORMATION
THIS PRODUCT IS NOT CLASSIFIED ACCORDING TO EU LEGISLATION.

SECTION 16. OTHER INFORMATION

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