## MSDS COVERSHEET

**CATALOG # BK105**

**Rho GAP EXCHANGE ASSAY BIOCHEM KIT**

<table>
<thead>
<tr>
<th>PART/CATALOG #</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>RXB01</td>
<td>Reaction buffer (2X)</td>
</tr>
<tr>
<td>GAS01</td>
<td>p50 RhoGAP domain</td>
</tr>
<tr>
<td>RH01</td>
<td>His-RhoA protein</td>
</tr>
<tr>
<td>RC01</td>
<td>His-Rac1 protein</td>
</tr>
<tr>
<td>CD01</td>
<td>His-Cdc42 protein</td>
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<tr>
<td>RS01</td>
<td>His-Ras p21 protein</td>
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<tr>
<td>BST06-001</td>
<td>GTP</td>
</tr>
<tr>
<td>BK054</td>
<td>CytoPhos Reagent</td>
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</tbody>
</table>

No MSDS required for the 96 well plates
SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: RXB01

NAME: REACTION BUFFER (2X)

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, CANADA, AND PUERTO RICO: 1-800-535-5053
OUTSIDE USA, CANADA, AND PUERTO RICO: 352-323-35000 (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

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 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

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

SODIUM CHLORIDE CAS#: 7647-14-5 <1%
EINECS#: 231-598-3

EDTA (ETHYLENEDIAMINETETRAACETIC ACID) CAS#: 60-00-4 <1%
EINECS#: 200-449-4

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. 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

SECTION 6. ACCIDENTAL RELEASE MEASURES
PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. DO NOT INHALE DUST, MIST OR VAPOR.

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). FOR LYOPHILIZED PRODUCT, SWEEP UP AND STORE IN SEALED CONTAINER. 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. DO NOT INHALE DUST, MIST OR VAPOR. 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 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: FILTER P2
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: 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 DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

POTENTIAL HEALTH EFFECTS

EYES   MAY CAUSE EYE IRRITATION
SKIN   MAY CAUSE SKIN IRRITATION
INHALATION  MAY BE HARMFUL IF INHALED
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

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

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#: GAS01

NAME: p50Rho GAP PROTEIN, CATALYTIC DOMAIN (HUMAN RECOMBINANT)

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

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

HMIS RATINGS
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

TRIS BASE CAS#: 77-86-1 <1%
EINECS#: 201-064-4
MAGNESIUM CHLORIDE CAS#: 7791-18-6 <1%
EINECS#: UNLISTED
DEXTRAN CAS#: 9004-54-0 1%
EINECS#: 232-677-5
SUCROSE CAS#: 57-50-1 5%
EINECS#: 200-334-9
PROTEIN CAS#: NONE ≥90%
EINECS#: NONE

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. 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. 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

SECTION 6. ACCIDENTAL RELEASE MEASURES
PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: 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: ABSORB WITH LIQUID-BINDING MATERIAL (SAND, DIATOMITE, ACID BINDERS, UNIVERSAL BINDERS, SAWDUST). FOR LYOPHILIZED PRODUCT, SWEEP UP AND STORE IN SEALED CONTAINER. 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 RECEPTACLES: STORE AT 2-8°C. KEEP CONTAINER TIGHTLY CLOSED AND SEALED UNTIL READY FOR USE. STORE DRIED.

FURTHER INFORMATION ABOUT STORAGE CONDITIONS: KEEP RECEPTACLE TIGHTLY SEALED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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: FILTER P2. 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.
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: PRODUCT IS NOT SELF-IGNITING
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 WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN

HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

ON THE SKIN: MAY CAUSE SKIN IRRITATION
SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN
ON THE EYE: MAY CAUSE EYE IRRITATION
INHALATION: MAY IRRITATE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED
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

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
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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SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: RH01

NAME: RhoA, His-Tag, WILD-TYPE, HUMAN, RECOMBINANT, E. coli

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挫 NONE
SIGNAL WORD挫 NONE

HAZARD STATEMENTS
NONE

PRECAUTIONARY STATEMENTS
NONE

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 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

TRIS BASE CAS#: 77-86-1 <1%
EINECS#: 201-064-4
MAGNESIUM CHLORIDE CAS#: 7791-18-6 <1%
EINECS#: UNLISTED
DEXTRAN CAS#: 9004-54-0 <1%
EINECS#: 232-677-5
SUCROSE CAS#: 57-50-1 <1%
EINECS#: 200-334-9
SODIUM CHLORIDE CAS#: 7647-14-5 <1%
EINECS#: 231-598-3
PROTEIN CAS#: NONE >70%
EINECS#: NONE

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. 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

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

SECTION 6. ACCIDENTAL RELEASE MEASURES
PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: 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: 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 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

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: FILTER P2
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: N/A
BOILING POINT/BOILING RANGE: N/A
FLASH POINT: N/A.
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NOT DETERMINED
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCELLABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

ON THE SKIN: MAY CAUSE SKIN IRRITATION
SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN
ON THE EYE: MAY CAUSE EYE IRRITATION
INHALATION: MAY IRRITATE MUCOUS MEMBRANES AND UPPER RESPIRATORY
TRACT. MAY BE HARMFUL IF INHALED
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 DISPERAL OF SPILLED
MAERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND
SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL
REGULATIONS.

WITHIN THE PRESENT KNOWLEDGE OF THE SUPPLIER, THIS PRODUCT IS NOT
REGARDED AS HAZARDOUS WASTE, AS DEFINED BY EU DIRECTIVE 91/689/EC.

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.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION
SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)

NONE OF THE INGREDIENTS IS LISTED.

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: NOT CONTROLLED UNDER WHMIS.

EU REGULATORY INFORMATION
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#: RC01

NAME: Rac1 His-Tag, WILD-TYPE, HUMAN, RECOMBINANT, E. coli

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

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 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**

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**SECTION 4. FIRST-AID MEASURES**

**AFTER INHALATION:** SUPPLY FRESH AIR. 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

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

**SECTION 6. ACCIDENTAL RELEASE MEASURES**
PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: 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: 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 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

PERSONAL PROTECTIVE EQUIPMENT

GENERAL PROTECTIVE AND HYGIENIC MEASURES
KEEP AWAY FROM FOODSTUFFS, BEVERAGES AND FEED
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IMMEDIATELY REMOVE ALL SOILED AND CONTAMINATED CLOTHING
AVOID CONTACT WITH THE EYES AND SKIN

BREATHING EQUIPMENT
SHORT TERM FILTER DEVICE: FILTER P2
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: N/A
BOILING POINT/BOILING RANGE: N/A
FLASH POINT: N/A.
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NOT DETERMINED
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISCELLABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN

HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

ON THE SKIN: MAY CAUSE SKIN IRRITATION
SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN
ON THE EYE: MAY CAUSE EYE IRRITATION
INHALATION: MAY IRRITATE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED
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.

WITHIN THE PRESENT KNOWLEDGE OF THE SUPPLIER, THIS PRODUCT IS NOT REGARDED AS HAZARDOUS WASTE, AS DEFINED BY EU DIRECTIVE 91/689/EC.

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.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION
SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986-USA)

NONE OF THE INGREDIENTS IS LISTED.

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: NOT CONTROLLED UNDER WHMIS.

EU REGULATORY INFORMATION
SECTION 16. OTHER INFORMATION

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: CD01

NAME: Cdc42 His-Tag, WILD-TYPE, HUMAN, RECOMBINANT, E. coli

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

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 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

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SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. CONSULT PHYSICIAN IN CASE OF COMPLAINTS
AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER
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AFTER SWALLOWING: WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL FOR 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

SECTION 6. ACCIDENTAL RELEASE MEASURES
PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: 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: 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 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

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GENERAL PROTECTIVE AND HYGIENIC MEASURES
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AVOID CONTACT WITH THE EYES AND SKIN

BREATHING EQUIPMENT
SHORT TERM FILTER DEVICE: FILTER P2
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 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: SOLID (LYOPHILIZED POWDER)
CHANGE IN CONDITION
MELTING POINT/MELTING RANGE: N/A
BOILING POINT/BOILING RANGE: N/A
FLASH POINT: N/A.
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NOT DETERMINED
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 DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN

HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

ON THE SKIN: MAY CAUSE SKIN IRRITATION
SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN
ON THE EYE: MAY CAUSE EYE IRRITATION
INHALATION: MAY IRRITATE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED
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 DISPERAL OF SPILLED MATERIAL AND RUNOFF AND CONTACT WITH SOIL, WATERWAYS, DRAINS AND SEWERS. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

WITHIN THE PRESENT KNOWLEDGE OF THE SUPPLIER, THIS PRODUCT IS NOT REGARDED AS HAZARDOUS WASTE, AS DEFINED BY EU DIRECTIVE 91/689/EC.

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.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION

NONE OF THE INGREDIENTS IS LISTED.

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: NOT CONTROLLED UNDER WHMIS.

EU REGULATORY INFORMATION
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#: RS01

NAME: H-Ras, His-Tag, WILD-TYPE, HUMAN, RECOMBINANT, E. coli

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

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 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

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<th>Ingredient</th>
<th>CAS#</th>
<th>EINECS#</th>
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<tr>
<td>TRIS BASE</td>
<td>77-86-1</td>
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<tr>
<td>MAGNESIUM CHLORIDE</td>
<td>7791-18-6</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>DEXTRAN</td>
<td>9004-54-0</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>SUCROSE</td>
<td>57-50-1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>SODIUM CHLORIDE</td>
<td>7647-14-5</td>
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</tr>
<tr>
<td>PROTEIN</td>
<td>NONE</td>
<td>≥70%</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. 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

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

SECTION 6. ACCIDENTAL RELEASE MEASURES
PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: 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: 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/EXHAUSATION 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 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

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: FILTER P2
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: N/A
BOILING POINT/BOILING RANGE: N/A
FLASH POINT: N/A.
SELF-IGNITING: PRODUCT IS NOT SELF-IGNITING
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY: NOT DETERMINED
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISICIBLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

ON THE SKIN: MAY CAUSE SKIN IRRITATION
SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN
ON THE EYE: MAY CAUSE EYE IRRITATION
INHALATION: MAY IRRITATE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED
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.

WITHIN THE PRESENT KNOWLEDGE OF THE SUPPLIER, THIS PRODUCT IS NOT REGARDED AS HAZARDOUS WASTE, AS DEFINED BY EU DIRECTIVE 91/689/EC.

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.

SECTION 15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION

NONE OF THE INGREDIENTS IS LISTED.

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: NOT CONTROLLED UNDER WHMIS.

EU REGULATORY INFORMATION
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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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG/PRODUCT#: BST06

NAME: GUANOSINE 5’-TRIPHOSPHATE SODIUM SALT (GTP)

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
TOXIC BY INGESTION, IRRITANT

THIS PRODUCT IS CONSIDERED HAZARDOUS BY THE OSHA HAZARD

THIS PRODUCT IS CLASSIFIED AS HAZARDOUS ACCORDING TO DIRECTIVE
67/548/EC AND ASSOCIATED AMENDMENTS.

POTENTIAL HEALTH EFFECTS

INHALATION MAY BE HARMFUL IF INHALED. CAUSES
RESPIRATORY TRACT IRRITATION

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

INGESTION TOXIC IF SWALLOWED
EYES CAUSES EYE IRRITATION

NFPA RATINGS (SCALE 0-4)

FIRE = 1
HEALTH = 2
REACTIVITY = 0
HMIS RATINGS
HEALTH = 2
FIRE = 1
REACTIVITY = 0

GHS CLASSIFICATION:

SIGNAL WORD: DANGER

HAZARD PICTOGRAMS:

ACUTE TOXICITY, CATEGORY 4
SERIOUS EYE DAMAGE, CATEGORY 1
CHRONIC AQUATIC TOXICITY, CATEGORY 3
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3)
SKIN IRRITATION (CATEGORY 2)

HEALTH HAZARD STATEMENTS:

H302: HARMFUL IF SWALLOWED
H315: CAUSES SKIN IRRITATION
H318: CAUSES SERIOUS EYE DAMAGE
H319: CAUSES SERIOUS EYE IRRITATION
H335: MAY CAUSE RESPIRATORY IRRITATION
H412: HARMFUL TO AQUATIC LIFE WITH LONG-LASTING EFFECTS

PRECAUTIONARY STATEMENTS:

P261: AVOID BREATHING DUST/FUMES/GAS/MIST/VAPORS/SPRAY
P264: WASH SKIN THOROUGHLY AFTER HANDLING
P270: DO NOT EAT, DRINK OR SMOKE WHEN USING THIS PRODUCT
P271: USE ONLY IN A WELL-VENTILATED AREA
P280: WEAR PROTECTIVE GLOVES/EYE PROTECTION/FACE PROTECTION
P301 + P312: IF SWALLOWED, CALL A POISON CENTER OR PHYSICIAN IF YOU FEEL UNWELL.
P302 + P352: IF ON SKIN: WSH WITH PLENTY OF SOAP AND WATER.
P304 + P340: IF INHALED: REMOVE VICTIM 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 RINISING.
P332 + P313: IF SKIN IRRITATION OCCURS: GET MEDICAL ADVICE/ATTENTION.
P337 + P313: IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ATTENTION.
P362: TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE REUSE.

P403 + P233: STORE IN A WELL-VENTILATED PLACE. KEEP CONTAINER TIGHTLY CLOSED.

P405: STORE LOCKED UP.

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

GUANOSINE 5'-TRIPHOSPHATE CAS#: 36051-31-7 11%
SODIUM SALTS (GTP) EINECS#: 252-847-2

GUANIDINE CARBONATE SALT CAS#: 593-85-1 9%
EINECS#: 209-813-7

WATER CAS#: 7732-18-5 80%
EINECS#: 231-791-2

SECTION 4. FIRST-AID MEASURES

AFTER INHALATION: SUPPLY FRESH AIR. CONSULT PHYSICIAN IN CASE OF COMPLAINTS. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN

AFTER SKIN CONTACT: IMMEDIATELY WASH SKIN WITH SOAP AND RINSE WITH COPIOUS AMOUNTS OF WATER. CALL FOR 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. CALL FOR PHYSICIAN

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. FIREFIGHTING MEASURES

EXTINGUISHING MEDIA

SUÍTABLE 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: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES (NOx), SULPHUR OXIDES, PHOSPHOROUS OXIDES, LITHIUM OXIDES

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. AVOID DUST FORMATION.
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: UPON 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. IN LYOPHILIZED FORM, PICK UP WITHOUT CREATING DUST. 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 FORMATION OF DUST AND AEROSOLS. AVOID CONTACT WITH SKIN AND EYES. 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 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: FILTER P2
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: 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: NO DATA AVAILABLE.
DENSITY: NOT DETERMINED
SOLUBILITY IN/MISCIBILITY WITH WATER: FULLY MISICIBLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: STRONG OXIDIZING AGENTS, STRONG ACIDS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN

HAZARDOUS COMBUSTION PRODUCTS: HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS: CARBON OXIDES, NITROGEN OXIDES (NOx), SULPHUR OXIDES, PHOSPHOROUS OXIDES, LITHIUM OXIDES

SECTION 11. TOXICOLOGICAL INFORMATION
INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY

LD50 ORAL -MOUSE- 350 mg/kg

IRRITATION AND CORROSION

EYES –RABBIT- MODERATE EYE IRRITATION – 24 H

SENSITIZATION

NO DATA AVAILABLE

CHRONIC EXPOSURE

IARC/ACGIH/NTP/OSHA: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN.

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

ON THE SKIN: CAUSES SKIN IRRITATION
SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH SKIN
ON THE EYE: CAUSES EYE IRRITATION
INHALATION: IRRITATES MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED
INGESTION: TOXIC 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
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
TOXIC BY INGESTION, IRRITANT

DSL STATUS
DIGUANIDINIUM CARBONATE IS ON THE CANADIAN DSL LIST.

TSCA:
CAS# 593-85-1 IS LISTED ON THE TSCA INVENTORY.

OSHA:
NONE OF THE CHEMICALS IN THIS PRODUCT ARE CONSIDERED HIGHLY HAZARDOUS BY OSHA

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.

STATE RIGHT TO KNOW COMPONENTS
PA AND NJ
DIGUANIDINIUM CARBONATE CAS#: 593-85-1

CANADA REGULATORY INFORMATION
WHMIS CLASSIFICATION: THIS PRODUCT HAS A WHMIS CLASSIFICATION OF D2B.
WGK (WATER DANGER/PROTECTION)
CAS# 593-85-1:2

EU REGULATORY INFORMATION

SAFETY PHRASES:
S22: DO NOT BREATHE DUST

RISK PHRASES:
R22: HARMFUL IF SWALLOWED
R36/37/38: IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN

HAZARD SYMBOLS:
XI

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#: CYPH

NAME: CYTOPHOS REAGENT

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, CANADA, AND PUERTO RICO: 1-800-535-5053 OUTSIDE USA, CANADA, AND PUERTO RICO: 352-323-35000 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA HAZARDS: CORROSIVE (C, R34: CAUSES BURNS), IRRITANT (Xi, R37: IRRITATING TO RESPIRATORY SYSTEM)

GHS CLASSIFICATION:

SKIN CORROSION (CATEGORY 1B)
SERIOUS EYE DAMAGE (CATEGORY 1)
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3)

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

GHS05 CORROSION

SKIN CORROSIVE 1B H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE

GHS07

STOT SE 3 H335 MAY CAUSE RESPIRATORY IRRITATION
SIGNAL WORD: DANGER

HAZARD STATEMENTS:
H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE
H335 MAY CAUSE RESPIRATORY IRRITATION

PRECAUTIONARY STATEMENTS:
P260 DO NOT BREATHE DUST, FUME, GAS, MIST, VAPORS, OR SPRAY
P303+P361+P353 IF ON SKIN (OR HAIR): REMOVE/TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/SHOWER
P305+P351+P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES IF PRESENT AND EASY TO DO. CONTINUE RINISING
P310 IMMEDIATELY CALL A POISON CENTER OR PHYSICIAN
P405 STORE LOCKED UP
P501 DISPOSE OF CONTENTS/CONTAINER IN ACCORDANCE WITH LOCAL, REGIONAL, NATIONAL, AND INTERNATIONAL REGULATIONS

POTENTIAL HEALTH EFFECTS
EYES STRONG CAUSTIC EFFECT
SKIN CAUSTIC EFFECT ON SKIN
INHALATION CAUSTIC EFFECT ON MUCOUS MEMBRANES
INGESTION STRONG CAUSTIC EFFECT ON MOUTH AND THROAT WITH A DANGER OF PERFORATING ESOPHAGUS AND STOMACH

NFPA RATINGS (SCALE 0-4)
FIRE = 0
HEALTH = 3
REACTIVITY = 0

HMIS RATINGS
HEALTH = 3
FIRE = 0
REACTIVITY = 0

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS
HYDROCHLORIC ACID CAS#: 7647-01-0 3%
EINECS#: 231-595-7

SECTION 4. FIRST-AID MEASURES
REMOVE CLOTHING CONTAMINATED BY PRODUCT AND WASH CONTAMINATED CLOTHING BEFORE REUSE.
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
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. DRINK COPIOUS AMOUNTS OF WATER. CONSULT PHYSICIAN

SECTION 5. FIREFIGHTING MEASURES

EXTINGUISHING MEDIA
SUITEABLE 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. DO NOT INHALE GASES.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: WEAR PROTECTIVE CLOTHING, RESPIRATOR, CHEMICAL SAFETY GOGGLES, GLOVES. DO NOT INHALE DUST, MIST OR VAPOR.
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. DO NOT INHALE DUST, MIST OR VAPOR. WEAR APPROPRIATE PROTECTIVE CLOTHING (SEE SECTION 8). DO NOT RE-USE CONTAINER.
INFORMATION ABOUT PROTECTION AGAINST EXPLOSIONS AND FIRES: KEEP AWAY FROM HEAT, SOURCES OF IGNITION AND INCOMPATIBLES SUCH AS OXIDIZING AGENTS.
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 IN A WELL-VENTILATED AREA.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENTS WITH LIMIT VALUES THAT REQUIRE WORKPLACE MONITORING

HYDROGEN CHLORIDE CAS# 7647-01-0

IOELV SHORT-TERM VALUE: 15 mg/m$^3$, 10 PPM
LONG-TERM VALUE: 8 mg/m$^3$, 5 PPM

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: FILTER P2
DO NOT BREATHE. USE MECHANICAL EXHAUST SYSTEM
FOR LONG TERM EXPOSURE, USE SELF-CONTAINED RESPIRATORY PROTECTIVE DEVICE

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: LIQUID
COLOR: COLORLESS
ODOR: PUNGENT
CHANGE IN CONDITION
MELTING POINT/MELTING RANGE: -40°C
BOILING POINT/BOILING RANGE: 100°C
FLASH POINT: NOT APPLICABLE
FLAMMABILITY: NOT APPLICABLE
SELF-IGNITING: NOT DETERMINED
DANGER OF EXPLOSION: PRODUCT IS NOT EXPLOSIVE.
DENSITY AT 20°C: 1.15 g/cm³
UPPER AND LOWER EXPLOSION LIMITS: NOT DETERMINED
VAPOR PRESSURE: NOT DETERMINED
SOLUBILITY IN/MISCIBILITY WITH WATER: NOT DETERMINED

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY
CHEMICAL STABILITY
STABLE WHEN STORED AS RECOMMENDED.

THERMAL DECOMPOSITION/CONDITIONS TO BE AVOIDED: NO DECOMPOSITION IF USED ACCORDING TO SPECIFICATIONS. AVOID STRONG OXIDIZING AGENTS

POSSIBILITY OF HAZARDOUS REACTIONS: NO DANGEROUS REACTIONS KNOWN

HAZARDOUS DECOMPOSITION PRODUCTS: NO DANGEROUS PRODUCTS KNOWN

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.

ACUTE TOXICITY:

LD/LC50 VALUES FOR HYDROGEN CHLORIDE, CAS#: 7647-01-0

ORAL  LD50  900 mg/kg (RABBIT)
       LD50  40.142 mg/kg (MOUSE, INTRAPERITONEAL)

POTENTIAL HEALTH EFFECTS
EYES   STRONG CAUSTIC EFFECT
SKIN   CAUSTIC EFFECT ON SKIN
INHALATION  CAUSTIC EFFECT ON MUCOUS MEMBRANES
INGESTION  STRONG CAUSTIC EFFECT ON MOUTH AND THROAT WITH A DANGER OF PERFORATING ESOPHAGUS AND STOMACH

THIS PRODUCT IS OR CONTAINS A COMPONENT THAT IS NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY BASED ON ITS IARC, ACGIH, NTP, OR EPA CLASSIFICATION (HYDROCHLORIC ACID).

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

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:
CORROSIVE

UNITED STATES REGULATORY INFORMATION

NONE OF THE INGREDIENTS IS LISTED.

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

THE FOLLOWING COMPONENTS ARE SUBJECT TO REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313:

HYDROCHLORIC ACID CAS#: 7647-01-0

SARA 311/312 HAZARDS

ACUTE HEALTH HAZARD

MA, PA AND NJ RIGHT TO KNOW COMPONENTS

HYDROCHLORIC ACID CAS#: 7647-01-0

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

STOT SE 3 = SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE

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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