

BCA Protein Assay Kit



✓ 1 Kit
(960 assays)

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rev. 05/08/17

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Component #	Quantity
BCA Protein Assay Reagent A	11621	1 x 250 ml
BCA Protein Assay Reagent B	11622	1 x 25 ml
BCA Protein Assay Albumin Standard	11623	1 x 10 units
Compatibility Reagent	11785	1 x 48 Ea
Reconstitution Buffer	11791	1 x 15 ml

Description: The BCA Protein Assay Kit can be used to measure the protein concentration of lysates or homogenates, in microplate format, prepared with the following buffers: Cell Lysis Buffer (10X) #9803, RIPA Buffer (10X) #9806, PathScan® Sandwich ELISA Lysis Buffer (1X) #7018. The dynamic range for this assay is 0.125 - 2 mg/mL. It is recommended that the BCA Compatibility Reagent be used to decrease interference from reducing agents, chelators, detergents, and other common ingredients found in most lysis buffers. Please see the attached protocol for additional details.

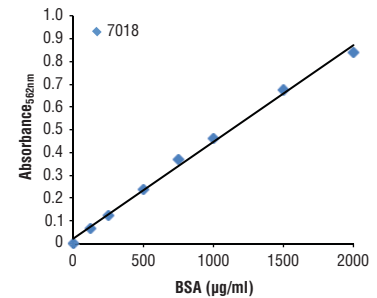
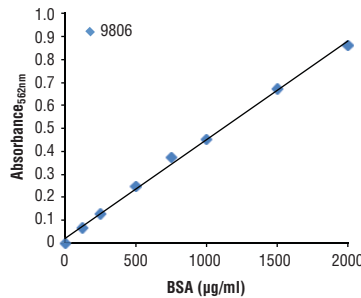
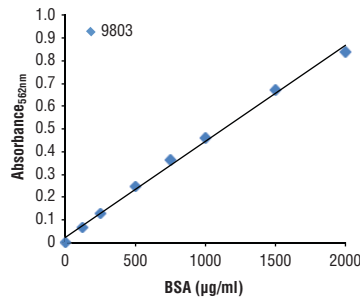
Background: Bicinchoninic Acid (BCA) is capable of forming an intense purple complex with cuprous ion, Cu¹⁺, in an alkaline environment. Cu¹⁺ is produced from the reaction of protein with alkaline Cu²⁺. The resulting reaction and color produced is the basis for a common protein quantification method capable of measuring protein concentration over a wide range. Increasing protein concentrations produce proportionally deeper colors. The BCA protein assay demonstrates higher tolerances towards common interfering substances, such as nonionic detergents and buffer salts, than the Lowry technique (1).

Background References:

(1) Smith, P.K. et al. (1985) *Anal Biochem* 150, 76-85.

Storage: This kit is stable at room temperature for 12 months past the reference date indicated on the kit box label. Do not freeze and avoid higher than ambient temperatures. Protect from light: It is recommended to keep reagents within the kit box to minimize exposure to light.

Directions for Use: Please see attached protocol.



Standard curves generated with bovine serum albumin (BSA) ranging from 125 to 2,000 µg/ml using Cell Lysis Buffer #9803, RIPA Buffer #9806, and PathScan® Sandwich ELISA Lysis Buffer #7018.

BCA Protein Assay Protocol

A Solutions and Reagents

Kit Contents:

1. BCA Reagent A: 250 ml (sodium carbonate, sodium bicarbonate, bicinchoninic acid, and sodium tartarate in 0.1 M sodium hydroxide).
2. BCA Reagent B: 25 ml (4% cupric sulfate).
3. Compatibility Reagent: 9.3 mg × 48 microtubes.
4. Reconstitution Buffer: 15 ml.
5. Albumin Standard (2 mg/ml): 10 × 1 ml ampules of bovine serum albumin (BSA) in 0.9% NaCl and 0.05% sodium azide.

Additional Required Materials:

1. 96-well plate compatible with absorbance measuring plate readers (such as Costar #3797)
2. Adjustable volume pipettes and disposable pipette tips
3. An incubator set at 37°C
4. Plate reader capable of measuring absorbance at 562 nm

B Standard Preparation

Dilute the contents of one Albumin Standard (BSA) ampule into several microcentrifuge tubes, using the same buffer as the unknown sample(s). Use the following table as a guide to prepare a set of standards (assay range = 125–2,000 µg/ml).

Vial	Diluent/Sample Buffer Volume (µl)	BSA Source and Volume (µl)	Concentration (µg/ml)
A	0	200 of stock	2,000
B	66	200 of stock	1,500
C	100	100 of vial A	1,000
D	100	100 of vial B	750
E	100	100 of vial C	500
F	100	100 of vial E	250
G	100	100 of vial F	125

Note: Do not discard any unused, undiluted BSA standard (2 mg/ml). BSA standard can be stored in a microcentrifuge tube at 4°C for up to 2 weeks. Do not freeze.

C Reagent Preparation

Working Reconstitution Buffer:

Dilute the Reconstitution Buffer 1:1 with dH₂O. Do not dilute the Reconstitution Buffer if the protein sample has a pH < 6.0 or if it contains EDTA or imidazole.

Compatibility Reagent Solution:

Puncture the foil covering on the Compatibility Reagent tube with a clean pipette tip. Add 100 µl of Working Reconstitution Buffer into the tube and dissolve by stirring the bottom of the tube and pipetting up and down 15–20 times. Store this solution for up to 8 hr at 4°C protected from light. Used microtubes may be cut and discarded from the unused microtubes. Return the unused microtubes to pouch containing the desiccant pack.

Note: 4 µl Compatibility Reagent Solution will be required for each sample assayed.

BCA Working Reagent (WR):

Use the following formula to determine the total volume of WR required:

(# controls + # standards + # unknowns) × (# replicates) × (volume of WR per sample) = total volume WR required.

Example: For three unknowns and two replicates of each sample:

(2 controls + 7 standards + 3 unknowns) × (2 replicates) × (0.26 ml) = 6.24 ml WR required.

To prepare the WR, mix 50 parts BCA Reagent A with 1 part of BCA Reagent B (50:1, Reagent A:B). *6.24 ml WR = 6.13 ml Reagent A + 0.13 ml Reagent B*

Note: When Reagent B is added to Reagent A, the solution appears turbid but yields a clear, green WR upon mixing.

D Assay

Notes:

Precision pipetting is essential. For best results, use 1–10 µl pipettes. Completely evacuate the tip of any fluid. Small errors when pipetting account for large errors when measuring the absorbance.

Add samples directly to the center of the well and avoid touching the sides of the well. The same tip may be used within the same group of samples. Use a different tip for each sample when adding the Compatibility Reagent Solution.

If the protein sample has a pH < 5.0, dilute the sample 1:1 with Reconstitution Buffer.

Protocol:

1. Add 9 µl of Standard Control, Sample Control, Protein Standard, or unknown sample to individual wells on a microplate.
2. Add 4 µl Compatibility Reagent Solution to the sample in each well.
3. Cover plate and mix on a plate shaker at medium speed for 1 min and then incubate at 37°C for 15 min.
4. Add 260 µl WR to each well. Cover plate and mix on a plate shaker for 1 min. If the samples contain detergents, cover the plate after mixing. Incubate plate at 37°C for 30 min.
5. Cool plate at room temperature (RT) for 5 min.
6. Use the Standard Control as the blank. Measure the absorbance of the standards, unknown samples, and Sample Controls at 562 nm on a plate reader.

E Data Analysis

Because the BCA Assay does not reach a true end point, color development will continue even after cooling to RT. The absorbance increases at a rate of ~0.25% per minute at RT.

1. Subtract the average 562 nm absorbance value of the Sample Control replicates from the 562 nm absorbance value of all unknown sample replicates.
2. Prepare a standard curve by plotting the average blank-corrected 562 nm value for each BSA standard against its concentration (µg/ml). Use the standard curve to determine the protein concentration of each unknown sample.

Note: If using curve-fitting algorithms associated with a microplate reader, a four-parameter (quadratic) curve produces more accurate fit than a linear curve.

Important: This BCA Protein Assay Kit is compatible and has been thoroughly tested and approved to work with Cell Lysis Buffer (10X) #9803, RIPA Buffer (10X) #9806, and PathScan® Sandwich ELISA Lysis Buffer (1X) #7018 when each is used at 1X. The compatibility of this assay has not been evaluated on any other buffers.

Not applicable.

Safety Data Sheet (SDS) According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2017-01-18

Revision Date: 2016-08-12

Version: 1.01

SECTION 1. Identification
Product identifier

Product number 11622
Product name BCA Protein Assay Reagent B
UN number UN3082
Other means of identification 11622S

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics. This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
 3 Trask Lane
 Danvers, MA 01923
 United States
 TEL: +1 978 867 2300
 FAX: +1 978 867 2400
 www.cellsignal.com
Website
Email address support@cellsignal.com
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification
Classification

This substance/mixture is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

GHS Label elements, including precautionary statements
Signal Word

Not classified

Hazard statement(s)

None.

Precautionary Statement(s)

None.

Supplementary Hazard Information

Very toxic to aquatic life with long lasting effects
Hazards not otherwise classified (HNOC)

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11622 - BCA Protein Assay Reagent B

Revision Date: 2016-08-12

For non-emergency personnel

Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Other information

No information available.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up
Methods for containment

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Contain the spill. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

SECTION 7. Handling and storage
Precautions for safe handling

Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Keep in a banded area.

Packaging material

No information available.

Incompatible products

None known based on information supplied.

SECTION 8. Exposure controls/personal protection
Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
copper (II) sulfate, pentahydrate (1:1:5)	TWA dust and mist: 1 mg/m ³	-	IDLH dust and mist: 100 mg/m ³ TWA dust and mist: 1 mg/m ³

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection

Safety glasses with side-shields.

Skin and body protection

Wear protective gloves/clothing.

Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke when using this product.

SECTION 9. Physical and chemical properties

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SECTION 3. Composition/information on ingredients
Chemical nature

Liquid solution containing an inorganic compound

Synonyms

Cupric sulfate (pentahydrate); Sulfuric acid, copper(2+) salt, pentahydrate; Blue vitriol

Chemical Name	CAS No	Weight %
copper (II) sulfate, pentahydrate (1:1:5)	7758-99-8	1-5

SECTION 4. First-aid measures
Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Move to fresh air.

Ingestion

If swallowed, do not induce vomiting - seek medical advice. Rinse mouth.

Most important symptoms and effects, both acute and delayed

Excessive salivation, vomiting, diarrhea, gastric hemorrhage, increased heart rate, hypotension, hemolytic crisis, convulsions and paralysis.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders
General advice

For further assistance, contact your local Poison Control Center.

Protection of first-aiders

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures
Extinguishing media
Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data
Sensitivity to Mechanical Impact

None.

Sensitivity to Static Discharge

None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. Accidental release measures
Personal precautions, protective equipment and emergency procedures

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11622 - BCA Protein Assay Reagent B

Revision Date: 2016-08-12

Information on basic physical and chemical properties
Physical state

Liquid

Appearance

No information available

Color

Blue

Odor

No information available

No information available

Property
Values
Remarks
Method
pH

3.77

Melting point/freezing point
Initial boiling point and boiling range
Flash point

No information available

Evaporation rate

No information available

Flammability (solid, gas)
Upper flammability limit

No information available

Lower flammability limit

No information available

Vapor pressure

No information available

Vapor density

No information available

Relative density

No information available

Solubility

No information available.

Solubility in other solvents

No information available.

Partition coefficient: n-octanol/water

No information available

Autoignition temperature

No information available

Decomposition temperature

No information available

Viscosity

No information available

Viscosity, dynamic

No information available

Explosive properties

No information available

Oxidizing properties

No information available

Other information
Softening point

No information available

Molecular Weight

No information available

VOC content

No information available.

Density

No information available.

Bulk Density VALUE

No information available.

SECTION 10. Stability and reactivity
Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions
Hazardous reactions

None under normal processing.

Hazardous polymerization

None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

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SECTION 11. Toxicological information**Information on likely routes of exposure**

Inhalation	There is no data available for this product. Avoid breathing vapors or mists. May cause irritation of respiratory tract.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	There is no data available for this product. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
copper (II) sulfate, pentahydrate (1:1.5)	300 mg/kg (Rat)	> 2000 mg/kg (Rat)	-

ATEmix (oral) 10000 mg/kg

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	Excessive salivation, vomiting, diarrhea, gastric hemorrhage, increased heart rate, hypotension, hemolytic crisis, convulsions and paralysis.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organ Effects	Eyes, Respiratory system, Kidney, Liver, Skin.
Neurological effects	No information available.
Aspiration Hazard	No information available.

SECTION 12. Ecological information**Ecotoxicity**

Very toxic to aquatic life with long lasting effects

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
copper (II) sulfate, pentahydrate (1:1.5)	-	LC50 0.09 - 0.19 mg/L (Oncorhynchus mykiss) 96 h LC50 0.1478 - 0.165 mg/L (Oncorhynchus mykiss) 96 h LC50 0.96 - 1.8 mg/L (Lepomis macrochirus) 96 h LC50 0.66 - 1.15 mg/L (Lepomis macrochirus) 96 h LC50 0.6752 mg/L (Pimephales promelas) 96 h LC50 0.1 mg/L (Oncorhynchus mykiss) 96 h	EC50 0.147 - 0.227 mg/L (Daphnia magna) 48 h EC50 0.0058 - 0.0073 mg/L (Daphnia magna) 48 h

Persistence and degradability	Not readily biodegradable. Heavy metals are expected to persist in the environment.
Bioaccumulation	Material will likely bioaccumulate in exposed species.
Mobility	Is predicted to have low mobility in the environment

Other adverse effects

No information available.

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances	CWA - Bioaccumulative Chemicals of Concern (BCCs)
copper (II) sulfate, pentahydrate (1:1.5)	10 lb	Listed	Not Listed	Listed	Not Listed

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
copper (II) sulfate, pentahydrate (1:1.5)	10 lb	Not Listed

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
copper (II) sulfate, pentahydrate (1:1.5)	Listed	Listed	Listed

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-02-06

Revision Date: 2016-08-12

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SECTION 13. Disposal considerations**Waste Disposal Methods**

Should not be released into the environment. Dispose of in accordance with local regulations.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

DOT

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (copper (II) sulfate, pentahydrate (1:1.5))
Transport hazard class(es)	9
Packing group	III
Special provisions	8, 146, 173, 335, IB3, T4, TP1, TP29
Emergency response guide number	171

IATA

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (copper (II) sulfate, pentahydrate (1:1.5))
Transport hazard class(es)	9
Packing group	III
Special provisions	A97, A158

SECTION 15. Regulatory information**North American Inventory Listing****Canadian Workplace Hazardous Materials Information System (WHMIS) Classification**

This product does not meet the criteria for classification under the Hazardous Products Act.

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS No	SARA 313 - Threshold Values %
copper (II) sulfate, pentahydrate (1:1.5)	7758-99-8	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Safety Data Sheet (SDS) According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2016-07-01

Revision Date: 2016-07-01

Version: 1

SECTION 1. Identification**Product identifier**

Product number	11785
Product name	Compatibility Reagent
UN number	UN2811

Recommended use of the chemical and restrictions on use

Identified uses	This product is intended for research purposes only.
Uses advised against	This product is not intended for use in diagnostic procedures or therapeutics. This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address	Cell Signaling Technology, Inc. 3 Trask Lane Danvers, MA 01923 United States TEL: +1 978 867 2300 FAX: +1 978 867 2400 www.cellsignal.com support@cellsignal.com
Website	www.cellsignal.com
Email address	support@cellsignal.com
Emergency telephone number	In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification**Classification**

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Respiratory sensitization	Category 1
Skin sensitization	Category 1

GHS Label elements, including precautionary statements

Signal Word
Danger

Hazard statement(s)
Toxic if swallowed. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Precautionary Statement(s)

Avoid breathing dust/fume/gas/mist/vapors/spray. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated work clothing should not be allowed out of the workplace. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Store locked up. Dispose of contents/container to an approved waste disposal plant.

Supplementary Hazard Information

No information available.
Hazards not otherwise classified (HNOC)
 Not applicable.

SECTION 3. Composition/information on ingredients

Chemical Name	CAS No	Weight %
Compatibility Reagent	-	60-100

SECTION 4. First-aid measures

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Inhalation Move to fresh air. Get medical attention immediately if symptoms occur. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.
Ingestion Clean mouth with water and afterwards drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

General advice For further assistance, contact your local Poison Control Center.
Protection of first-aiders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures**Extinguishing media**

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

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frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection Safety glasses with side-shields.
Skin and body protection Wear protective gloves/clothing.
Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

SECTION 9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state	Solid	Color	No information available
Appearance	No information available	Odor	No information available
Odor	No information available	Odor Threshold	No information available
Property	Values	Remarks	Method
pH	No information available		
Melting point/freezing point			
Initial boiling point and boiling range			
Flash point			
Evaporation rate	No information available		
Flammability (solid, gas)	No information available		
Upper flammability limit	No information available		
Lower flammability limit	No information available		
Vapor pressure	No information available		
Vapor density	No information available		
Relative density	No information available		
Solubility	No information available		
Solubility in other solvents	No information available		
Partition coefficient: n-octanol/water	No information available		
Autoignition temperature	No information available		
Decomposition temperature	No information available		
Viscosity	No information available		
Viscosity, dynamic	No information available		
Explosive properties	No information available		
Oxidizing properties	No information available		
Other information			
Softening point	No information available		
Molecular Weight	No information available		
VOC content	No information available		
Density	No information available		
Bulk Density VALUE	No information available		

SECTION 10. Stability and reactivity**Reactivity**

No information available.

Chemical stability

Stable under recommended storage conditions.

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Specific hazards arising from the chemical

No information available.

Exposure Data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Avoid contact with skin, eyes and clothing. Avoid dust formation. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Other information No information available.

Environmental precautions

See Section 12 for additional information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.
Methods for cleaning up Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage**Precautions for safe handling**

Use according to package label instructions. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.
Packaging material No information available.
Incompatible products None known based on information supplied.

SECTION 8. Exposure controls/personal protection**Control parameters**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls.

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Possibility of hazardous reactions

Hazardous reactions None under normal processing.
Hazardous polymerization None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information**Information on likely routes of exposure**

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Eye contact There is no data available for this product. Avoid contact with eyes. May cause irritation.
Skin contact May cause sensitization by skin contact.
Ingestion Toxic if swallowed.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Compatibility Reagent	74 mg/kg (Mouse)	-	-

ATEmix (oral) 74 mg/kg

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing.
Sensitization Repeated or prolonged contact may cause allergic reactions in very susceptible persons.
Mutagenic effects No information available.
Carcinogenicity No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Neurological effects No information available.
Aspiration Hazard No information available.

SECTION 12. Ecological information**Ecotoxicity**

100% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability No information available.
Bioaccumulation No information available.
Mobility No information available

Other adverse effects

No information available.

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SECTION 13. Disposal considerations**Waste Disposal Methods.**

Dispose of in accordance with all applicable national environmental laws and regulations.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is subject to regulation as a hazardous material for shipping:

DOT

UN number	UN2811
UN proper shipping name	Toxic solids, organic, n.o.s. (Compatibility Reagent)
Transport hazard class(es)	6.1
Packing group	III
Special provisions	IB8, IP3, T1, TP33
Emergency response guide number	154

IATA

UN number	UN2811
UN proper shipping name	Toxic solids, organic, n.o.s. (Compatibility Reagent)
Transport hazard class(es)	6.1
Packing group	III
Special provisions	A3,A5

SECTION 15. Regulatory information**North American Inventory Listing****Canadian Workplace Hazardous Materials Information System (WHMIS) Classification**

This product does not meet the criteria for classification under the Hazardous Products Act.

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

U.S. Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet