

SAFETY DATA SHEET

SDS DATE: February 23, 2021



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Amantadine ELISA Kit
PRODUCT CODES: Cat# E4940-100
RESTRICTIONS ON USE: For laboratory research purposes. Not for drug or household use.
MANUFACTURER: BioVision, Inc.
ADDRESS: 155 S. Milpitas Blvd. Milpitas, CA 95035
EMERGENCY PHONE: 858-373-8066
OTHER CALLS: 408-493-1800
FAX PHONE: 408-493-1801
EMAIL: sds@biovision.com

SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
Micro ELISA plate	--	8 x 12 Strips	No hazards
Standard (S0 – S5)	Liquid	1 ml X 6	No hazards
HRP Conjugate	Liquid	7 ml	No hazards
Antibody working solution	Liquid	7 ml	No hazards
Substrate A	Liquid (Contains Urea hydrogen peroxide)	6 ml	See Below
Substrate B	Liquid (contains TMB)	6 ml	See below
Stop Solution	Liquid (Contains Sulfuric acid)	6 ml	See Below
Wash Buffer (20X)	Liquid	25 ml	No hazards
Sample Solution (20X)	Liquid	10 ml	No hazards
Plate Sealer	--	3	No hazards

Urea hydrogen peroxide:

Emergency Overview

GHS Classification: Oxidizing solids (Category 3), H272

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

GHS Label elements, including precautionary statements



Pictogram:

Signal word:

Hazard statement(s):

Danger

H272 May intensify fire; oxidizer.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

Precautionary statement(s):

P210 Keep away from heat.

P220 Keep/ Store away from clothing/ combustible materials.

P221 Take any precaution to avoid mixing with combustibles.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ eye protection/ face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

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P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
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.

HMIS Classification

Health hazard:
Chronic health hazard:
Flammability:
Physical hazards:

NFPA Rating

Health hazard:
Fire:
Reactivity hazard:

Potential Health Effects

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin: May be harmful if absorbed through skin. Causes skin burns.

Eyes: Causes eye burns.

Ingestion: May be harmful if swallowed.

Aggravated mediocl condition: May provoke asthmatic response in persons with asthma who are sensitive to airway irritants.

Sulfuric acid (H₂SO₄):

Emergency Overview

GHS Classification:

Acute toxicity, Oral (Category 5)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 3)
Chronic aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements:

Pictogram:



Signal word:

Danger

Hazard statement(s):

H303 May be harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s):

P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 3
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 2
NFPA Rating
Health hazard: 3
Fire: 0
Reactivity Hazard: 2
Special hazard: W
Potential Health Effects

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.

Skin: May be harmful if absorbed through skin. Causes skin burns. Causes skin irritation.

Eyes: Causes eye burns. Causes severe eye burns. Causes eye irritation.

Ingestion: May be harmful if swallowed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula	Concentration
Urea hydrogen peroxide	124-43-6	204-701-4	94.07	CO(NH ₂) ₂ · H ₂ O ₂	<0.2%
Sulfuric acid	7664-93-9	231-639-5	98.079 g/mol	H ₂ SO ₄	≤0.05%
3,3',5,5'-Tetramethylbenzidine (TMB)	54827-17-7	259-364-6	240.34	C ₁₆ H ₂₀ N ₂	<0.1%

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SECTION 4: FIRST AID MEASURES

Urea hydrogen peroxide:

Description of first-aid measures

General advice: Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Sulfuric acid (H₂SO₄):

General advice: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5: FIRE-FIGHTING MEASURES

Urea hydrogen peroxide:

Suitable extinguishing media: Dry powder Dry sand

Special hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides (NO_x) Combustible.

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Sulfuric acid (H₂SO₄):

Conditions of flammability: Not flammable or combustible.

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters: Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products: Hazardous decomposition products formed under fire conditions. - Sulphur oxides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Urea hydrogen peroxide:

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up: Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Sulfuric acid (H₂SO₄):

Personal precautions: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Urea hydrogen peroxide:

Handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

Storage: Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature 2 - 8 °C Store under inert gas. Air, light, and moisture sensitive. Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

Sulfuric acid (H₂SO₄):

Handling: Avoid inhalation of vapour or mist.

Storage: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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Urea hydrogen peroxide:

Control parameters:

Ingredients with workplace control parameters: Contains no substances with occupational exposure limit values.

Exposure controls:

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a fullface respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

Sulfuric acid (H₂SO₄):

Exposure Controls:

Components	CAS#	Value	Control Parameters	Basis
Sulfuric acid	7664-93-9	TWA	0.2 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1 mg/m ³	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Personal protective equipment:

Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Urea hydrogen peroxide	H ₂ SO ₄
Appearance	Solid	Clear liquid
pH:	No data available	1.2 at 5 g/l
Water Solubility:	No data available	soluble
Other Solubility:	No data available	No data available
Boiling Point (°C):	No data available	290 °C (554 °F) - lit
Melting Point (°C):	90 - 93 °C (194 - 199 °F) - lit	3 °C (37 °F)
Flash Point (°C):	No data available	Not applicable
Ignition Temperature (°C):	No data available	No data available
Density:	No data available	1.84 g/cm ³ at 25 °C (77 °F)

SECTION 10: STABILITY AND REACTIVITY

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Property	Urea hydrogen peroxide	H ₂ SO ₄
Reactivity	No data available	
Chemical stability:	Stable under recommended storage conditions.	
Conditions to avoid:	No data available	
Materials to avoid:	Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents	Bases, Halides, Organic materials, Carbides, fulminates, Nitrates, picrates, Cyanides, Chlorates, alkali halides, Zinc salts, permanganates, e.g. potassium permanganate, Hydrogen peroxide, Azides, Perchlorates., Nitromethane, phosphorous, Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(III) oxide, Powdered metals
Hazardous decomposition products:	Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)	Fire condition: Sulphur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Urea hydrogen peroxide:

Acute toxicity: LD50 Oral - Rat - female - > 2,000 mg/kg

(OECD Test Guideline 423)

Inhalation: Irritating to respiratory system.

Dermal: No data available

No data available

Skin corrosion/irritation: After long-term exposure to the chemical: Causes skin burns.

Serious eye damage/eye irritation: Eyes - In vitro study

Result: Irreversible effects on the eye - 4 h

(OECD Test Guideline 437)

Causes serious eye damage.

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Specific target organ toxicity – single exposure (GHS): no data available

Specific target organ toxicity – repeated exposure (GHS): no data available

Aspiration hazard: no data available

Synergistic effects: no data available

Additional information: RTECS: Not available

Sulfuric acid (H₂SO₄):

Acute toxicity

Oral LD50: LD50 Oral - rat - 2,140 mg/kg

Inhalation LC50: LC50 Inhalation - rat - 2 h - 510 mg/m³

Dermal LD50: no data available

Other information on acute toxicity: no data available

Skin corrosion/irritation: Skin - rabbit - Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation: Eyes - rabbit - Severe eye irritation

Respiratory or skin sensitisation: no data available

Germ cell mutagenicity: no data available

Carcinogenicity: The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic acid mists containing sulfuric acid is carcinogenic to humans (group 1).

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Teratogenicity

Specific target organ toxicity - single exposure (Globally Harmonized System): no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available

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Aspiration hazard: no data available

Potential health effects:

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin: May be harmful if absorbed through skin. Causes skin burns. Causes skin irritation.

Eyes: Causes eye burns. Causes severe eye burns. Causes eye irritation.

Signs and Symptoms of Exposure:

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional Information: RTECS: WS5600000

SECTION 12: ECOLOGICAL INFORMATION

Urea hydrogen peroxide:

Ecotoxicity: No data available

Persistence and degradability: no data available

Toxicity: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: hydrogen peroxide. Discharge into the environment must be avoided.

Sulfuric acid (H₂SO₄):

Toxicity: Toxicity to fish LC50 - Gambusia affinis (Mosquito fish) - 42 mg/l - 96 h

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

Urea hydrogen peroxide:

Waste treatment methods

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an after burner and scrubber.

Contaminated packaging: Dispose of as unused product.

Sulfuric acid (H₂SO₄):

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an after burner and scrubber.

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Urea hydrogen peroxide:

DOT (US): UN number: 1511 Class: 5.1 (8) Packing group: III Proper shipping name: Urea hydrogen peroxide

Reportable Quantity (RQ): Poison Inhalation Hazard: No

IMDG: UN number: 1511 Class: 5.1 (8) Packing group: III EMS-No: F-A, S-Q Proper shipping name: UREA HYDROGEN PEROXIDE

IATA: UN number: 1511 Class: 5.1 (8) Packing group: III Proper shipping name: Urea hydrogen peroxide

Sulfuric acid (H₂SO₄):

DOT (US): UN number: 1830 Class: 8 Packing group: II Proper shipping name: Sulfuric acid

Reportable Quantity (RQ): 100 lbs Marine pollutant: No Poison Inhalation Hazard: No

IMDG: UN number: 1830 Class: 8 Packing group: II EMS-No: F-A, S-B Proper shipping name: SULPHURIC ACID

Marine pollutant: No

IATA: UN number: 1830 Class: 8 Packing group: II Proper shipping name: Sulphuric acid

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: The following components are subject to reporting levels established by SARA Title III, Section 302: Sulfuric acid, CAS-No. 7664-93-9; Revision Date: 2007-07-01

SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313: Sulfuric acid, CAS-No. 7664-93-9; Revision Date: 2007-07-01

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SARA 311/312 Hazards: Sulfuric acid: Acute Health Hazard, Chronic Health Hazard; Urea hydrogen peroxide: Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components: Sulfuric acid, CAS-No. 7664-93-9; Revision Date: 2007-07-01

Pennsylvania Right To Know Components: Sulfuric acid, CAS-No. 7664-93-9; Revision Date: 2007-07-01; hydrogen peroxide-urea CAS-No.124-43-6 Revision Date 1994-07-31

New Jersey Right To Know Components: Sulfuric acid, CAS-No. 7664-93-9; Revision Date: 2007-07-01; hydrogen peroxide-urea CAS-No. 124-43-6 Revision Date 1994-07-31

California Prop. 65 Components:  WARNING: This product can expose you to chemicals including sulfuric acid and TMB, which are known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov/

EU regulations

Component	Risk Phrases	Safety Phrases
Urea hydrogen peroxide	R7; R23/24/25	S16; S36/37/39
H ₂ SO ₄	R35	S26, S30, S45

SECTION 16: OTHER INFORMATION:

DISCLAIMER:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioVision, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.