SAFETY DATA SHEET

Cat# E4645-100 4-Hydroxynonenal (4-HNE) ELISA Kit

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 4-Hydroxynonenal (4-HNE) ELISA Kit
PRODUCT CODES: Cat# E4645-100

RESTRICTIONS ON USE: For laboratory research purposes. Not for drug or household use.

MANUFACTURER: BioVision, Inc.
DIVISION: 
ADDRESS: 155 S. Milpitas Blvd. Milpitas, CA 95035

EMERGENCY PHONE: 858-373-8066
CHEMTREC PHONE: 
OTHER CALLS: 408-493-1800
FAX PHONE: 408-493-1801

SECTION 2: HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Volume</th>
<th>Safety Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro ELISA Plate</td>
<td>--</td>
<td>8 X 12 strips</td>
<td>No hazards</td>
</tr>
<tr>
<td>Lyophilized Standard</td>
<td>Liquid</td>
<td>2 vials</td>
<td>No hazards</td>
</tr>
<tr>
<td>Sample / Standard dilution buffer</td>
<td>Liquid</td>
<td>20 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>Biotin- detection antibody (Concentrated)</td>
<td>Liquid</td>
<td>120 μl</td>
<td>No hazards</td>
</tr>
<tr>
<td>Antibody dilution buffer</td>
<td>Liquid</td>
<td>10 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>HRP-Streptavidin Conjugate (SABC) (Avoid light)</td>
<td>Liquid</td>
<td>120 μl</td>
<td>No hazards</td>
</tr>
<tr>
<td>SABC dilution buffer</td>
<td>Liquid</td>
<td>10 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>TMB substrate (Avoid light)</td>
<td>Liquid</td>
<td>10 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>Stop Solution</td>
<td>Liquid (contains sulfuric acid &lt;10%)</td>
<td>10 ml</td>
<td>See below</td>
</tr>
<tr>
<td>Wash buffer (25X)</td>
<td>Liquid</td>
<td>30 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>Plate sealers</td>
<td>--</td>
<td>5</td>
<td>No hazards</td>
</tr>
</tbody>
</table>

Sulfuric acid:

Emergency Overview
OSHA Hazards: Target organ effect, Corrosive
Target Organs: Teeth, Lungs
GHS Classification:
- Corrosive to metals
- Skin corrosion (Category 1A)
- Serious eye damage (Category 1)
- Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements
Pictogram:

Signal word:

Hazard statement(s):
- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.

Precautionary statement(s):
- P234 Keep only in original container.
- P264 Wash skin thoroughly after handling.
- P280 Wear eye protection/ face protection.
- P280 Wear protective gloves.
Sulfuric acid:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>EC-No.</th>
<th>Molecular Weight</th>
<th>Chemical Formula</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>231-639-5</td>
<td>98.08</td>
<td>H₂O₄S</td>
<td>&lt;10%</td>
</tr>
</tbody>
</table>

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Potential Health Effects
- Inhalation: May be harmful 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

SECTION 4: FIRST AID MEASURES

General advice:
Consult a physician. Show this 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. Take victim immediately to hospital. 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

Condition of flammability: Not flammable or combustible.
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions:
Avoid contact with skin and eyes. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
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 for cleaning up:
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Avoid inhalation of vapor or mist.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: 4°C

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Sulfuric acid:

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
</table>
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Sulfuric acid 7664-93-9 TWA 0.2 mg/m³ USA. ACGIH Threshold Limit Values (TLV)

<table>
<thead>
<tr>
<th>Property</th>
<th>Sulfuric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>1.2 at 5 g/l</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Soluble</td>
</tr>
<tr>
<td>Other Solubility</td>
<td>290 °C (554 °F)</td>
</tr>
<tr>
<td>Boiling Point (°C):</td>
<td>3 °C (37 °F)</td>
</tr>
<tr>
<td>Melting Point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition Temperature (°C):</td>
<td>1.84 g/cm³</td>
</tr>
<tr>
<td>Density:</td>
<td>Sulfuric acid</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Sulfuric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability:</td>
<td>Stable under recommended storage conditions</td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>No data available</td>
</tr>
<tr>
<td>Materials to avoid:</td>
<td>Bases, halides, organic materials, carbides, fulminates, nitrates, picrates, cyanides, chlorates, alkali halides, zinc salts, permanganates, hydrogen peroxide, azides, perchlorates, nitromethane, phosphorus. Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorus (III) oxides, powdered metals</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>Sodium oxides</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

Sulfuric acid:
- Acute toxicity: LD50 Oral – rat – 2,140 mg/kg
  LC50 Inhalation – rat – 2 h – 510 mg/m³
- Skin corrosion/irritation: Skin – rabbit – extremely corrosive and destructive to tissue
- Serious eye damage/eye irritation: Eyes – rabbit – severe eye irritation
- Respiratory or skin sensitization: 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 rats (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 rat 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.
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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: no data available
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.

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

Eyes: Causes eye burns. Causes severe eye burns.

Ingestion: May be harmful if swallowed.

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

Sulfuric acid:

Persistence and degradability: no data available
Toxicity: Toxicity to fish: LC50 – Gambusia affinis (Mosquito fish) – 42 mg/l – 96 h
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

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as some components in this kit are highly flammable.

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Sulfuric acid:

DOT (US): Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

Additional Information: This product maybe shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes.

This kit would have the following classification:
Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

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

SARA 311/312 Hazards:
Sulfuric acid: Acute Health Hazard, Chronic 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

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

California Prop. 65 Components: WARNING: This product can expose you to chemicals including TMB, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

EU regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Risk Phrases</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>R35</td>
<td>S26, S30, S45</td>
</tr>
</tbody>
</table>

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.