

Material Safety Data Sheet (MSDS)

Revision Date: Jan 11, 2017

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

SKU# VB-3000, VB-3000s
Product name VitroView™ H&E Stain Kit

Contact Manufacturer

VitroVivo Biotech, LLC
405 E. Gude Drive, Suite 214
Rockville, MD 20850
USA

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Email: info@vitrovivo.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS-No |
|--|------------|
| Aluminum potassium sulfate dodecahydrate (Hematoxylin solution only) | 7784-24-9 |
| Hematoxylin (Hematoxylin solution only) | 517-28-2 |
| Sodium iodate (Hematoxylin solution only) | 7681-55-2 |
| Glycerol (Hematoxylin solution only) | 56-81-5 |
| Eosin Y (Eosin solution only) | 15086-94-9 |
| Phloxine B (Eosin solution only) | 18472-87-2 |
| Ethanol (Eosin solution only) | 64-17-5 |

3. HAZARDS IDENTIFICATION

GHS – Classification

Signal Word

DANGER



Health Hazards

| | |
|--|--------------|
| Acute oral toxicity | Category 4 |
| Skin irritation | Category 2 |
| Eye irritation | Category 2 A |
| Specific target organ toxicity (single exposure) Respiratory system | Category 3 |

Physical hazards

Not hazardous

Hazard Statements

H225 – Highly flammable liquid and vapor
H272 – May intensify fire; oxidizer
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317–May cause an allergic skin reaction
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation

Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P220 - Keep/Store away from clothing/ combustible materials.
P221 - Take any precaution to avoid mixing with combustibles.
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P264 - Wash skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves/ eye protection/ face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing
P285 - In case of inadequate ventilation wear respiratory protection.
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash 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
P304 + P341 - IF INHALED: If breathing is difficult, 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 rinsing
P312 - Call a POISON CENTER or doctor/ physician if you feel unwell
P321 - Specific treatment (see supplemental first aid instructions on this label)
P330 - Rinse mouth
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 - If eye irritation persists: Get medical advice/ attention
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P362 - Take off contaminated clothing and wash before reuse
P363 - Wash contaminated clothing before reuse.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P403 + P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

Principle Routes of Exposure

Potential Health Effects

Eyes

Causes irritation

Skin Causes irritation. Avoid contact with skin.
Inhalation Harmful by inhalation.
Ingestion Harmful if swallowed.

Specific effects

Carcinogenic effects Not Applicable
Mutagenic effects Not Applicable
Reproductive toxicity Not Applicable
Sensitization Not Applicable

Target Organ Effects Skin
Lungs

HMIS

| | |
|--------------|---|
| Health | 2 |
| Flammability | 2 |
| Reactivity | 0 |
| Physical | 2 |

4. FIRST AID MEASURES

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air. Call a physician or poison control center immediately.

Notes to physician Treat symptomatically

5. FIRE-FIGHTING MEASURES

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

Special protective equipment for firefighters Wear self-contained breathing apparatus and protective suit.

Special hazards arising from the substance or mixture Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use personal protection equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Methods for cleaning up Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not allow material to contaminate ground water system. See Section 12 for more information

7. HANDLING AND STORAGE

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| Handling | Always wear recommended Personal Protective Equipment. Avoid contact with skin, eyes or clothing. Remove all sources of ignition |
| Storage | Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Protect from sunlight. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits

| Chemical Name | OSHA PEL | OSH PEL (Ceiling) | ACGIH OEL (TWA) | ACGIH OEL (STEL) |
|-----------------|--------------------------------------|--------------------------------------|----------------------|--------------------------|
| Ethanol | 1,000 ppm 1,900 mg/m ³ | 1,000 ppm 1,900 mg/m ³ | 1,000.000000 ppm | 1,000.000000 ppm |
| Glycerol | 5 mg/m ³ | 15 mg/m ³ | 10 mg/m ³ | No information available |
| | | | | |

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| Engineering measures | Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday |
| Personal protective equipment | Personal Protective Equipment requirements are dependent on the user institution's risk assessment and are specific to the risk assessment for each laboratory where this material may be used. |
| Respiratory protection | In case of insufficient ventilation wear suitable respiratory equipment |
| Respirator Recommendations, National Institute of Occupational Safety and Health, U.S. | <p>Up to 50 ppm</p> <p>(APF = 10) Any air-purifying half-mask respirator with organic vapor cartridge(s) in combination with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100, P100.</p> <p>(APF = 10) Any supplied-air respirator Up to 125 ppm: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode (APF = 25) Any powered air-purifying respirator with an organic vapor cartridge in combination with a high-efficiency particulate filter. Up to 250 ppm: (APF = 50) Any air-purifying full-facepiece respirator equipped with organic vapor cartridge(s) in combination with an N100, R100, or P100 filter. (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. (APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and organic vapor cartridge(s) in combination with a high-efficiency particulate filter (APF = 50) Any self-contained breathing apparatus with a full facepiece (APF = 50) Any supplied-air respirator with a full facepiece Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus</p> |

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| | Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. /Any appropriate escape-type, self-contained breathing apparatus filter. |
| Hand protection | Impervious gloves. S24 - Avoid contact with skin. S36 – Wear suitable protective clothing. |
| Eye protection | Tight sealing safety goggles. |
| Skin and body protection | Impervious clothing. |
| Hygiene measures | Contaminated work clothing should not be allowed out of the workplace. Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice. |
| Environmental exposure Controls | Prevent product from entering drains |

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

| | | |
|---------------------------------|--------------------------|-------------------|
| Form | Liquid | |
| Appearance | | |
| Odor | Alcohol | |
| Boiling point/range | No data available | No data available |
| Melting point/range | No data available | No data available |
| Flash point | No data available | No data available |
| Autoignition temperature | No data available | No data available |
| Oxidizing properties | No information available | |
| Water solubility | Soluble | |

10. STABILITY AND REACTIVITY

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|---|--|
| Stability | Stable under normal conditions |
| Materials to avoid | Alkali metals, Oxidizing agents, Peroxides, Strong reducing agents, Powdered metals, Incompatibility: mixtures of iodates with finely divided aluminum, arsenic, copper, carbon, phosphorous (red or white) sulfur; hydrides of alkali and alkaline earth metals; sulfides of antimony, arsenic, copper or tin, metal cyanides, thiocyanates or impure manganese dioxide may react violently or explosively, either spontaneously (especially in the presence of moisture) or on initiation by heat, friction impact, sparks, or addition of sulfuric acid |
| Hazardous decomposition Products | No data available |
| Polymerization | No data available |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

| Chemical Name | LD50 (oral, rat/mouse) | LD50 (dermal, rat/rabbit) | LC50 (inhalation, rat/mouse) |
|----------------------|--|---------------------------|---|
| Ethanol | = 30,000 mg/kg (Rat)/No data available | No data available | =30,000 mg/m ³ (Rat)/No data available |
| Glycerol | = 12,800 mg/kg (Rat)No data available | No data available | No data available |
| Phloxine B | = 8,400 mg/kg (Rat)No data available | No data available | No data available |
| Sodium iodide | = 505 mg/kg (mouse) | No data available | No data available |

Principle Routes of Exposure Potential Health Effects

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|-------------------------------|--|
| Eyes | Causes irritation |
| Skin | Causes irritation |
| Inhalation | Harmful by inhalation |
| Ingestion | Harmful if swallowed |
| Carcinogenic effects | No information available. |
| Mutagenic effects | Phloxine B: Lungs, mutation in mammalian somatic cells. |
| Reproductive toxicity | Ethanol: Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects. Effects on Newborn: Drug dependence. Phloxine B: Developmental Toxicity-rat-Oral Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Newborn: Growth statistics (e.g., reduced weight gain). Developmental Toxicity-mouse-Oral Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Developmental Toxicity-mouse-Oral Specific Developmental Abnormalities: Musculoskeletal system No information available. |
| Sensitization | Phloxine B: RTECS: LM5900000 Sodium iodide: RTECS: NN1400000 |
| Additional Information | |
| Target organ effects | Stomach (ethanol, sodium iodide); Kidney (glycerol; RTECS: MA8050000) |

12. ECOLOGICAL INFORMATION

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| Ecotoxicity | Ethanol: Toxicity to fish. LC50 - Pimephalespromelas (fathead minnow) - 14,200 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates. LC50 - Ceriodaphniadubia (water flea) - 5,012 mg/l - 48 h. NOEC - Daphnia magna (Water flea) - 9.6 mg/l - 9 d Toxicity to algae. EC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l - 72 h Phloxine B: Toxicity to fish LC50 - Gambusiaaffinis (Mosquito fish) - 97.7 mg/l - 96 h Sodium iodide: Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 220 mg/l - 96 h |
| Chronic aquatic toxicity (Ethanol) | Category 3. |
| Mobility | See log POW. |
| Biodegradation | Inherently biodegradable. |
| Bioaccumulation | No information available. |

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations

14. TRANSPORT INFORMATION

Not determined

15. REGULATORY INFORMATION

UNITED STATES:**TSCA:**

This product is solely for research and development purposes only and may not be used, processed or distributed for a commercial purpose. It may only be handled by technically qualified individuals.

Prop 65 Listed Chemicals: No Prop 65 Chemicals.

No 313 Chemicals

CANADA:

DSL/NDSL: Not determined.

COMPONENT ETHANOL
WHMIS Classification D2B

EUROPEAN UNION:

PRODUCT RISK PHRASES: None assigned.

PRODUCT SAFETY PHRASES: Not applicable.

PRODUCT CLASSIFICATION: Not classified

16. OTHER INFORMATION

This information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of the material even if

reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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