



MATERIAL SAFETY DATA SHEET (MSDS)

Kit Name: VitroView™ PAS Stain Kit
SKU #: VB-3004

Revision Date: 01-16-2017

Components:

VB-3004 -1	Periodic Acid Solution
VB-3004 -2	Schiff 's Reagent
VB-3004 -3	Mayer's Hematoxylin Solution

VB-3004-1 Periodic Acid Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Periodic Acid Solution
Product number VB-3004-1
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 9605 Medical Center Dr. Suite 315 Rockville, MD 20850
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Composition:

Name	CAS#	% by weight
Periodic Acid	10450-60-9	< 1
Water	7732-18-5	

3. Hazards Identification

Caution: May cause skin, eye, and respiratory tract irritation. The toxicological properties have not been fully investigated.

Potential Health Effects: The toxicology of this compound have not been completely examined. It is presumed that the toxicity of this item is similar to other weak oxidizers. Irritating to skin, eyes and mucous membranes. Ingestion will cause gastrointestinal distress.

Acute Effects

Principle Routes of Exposure:

Eyes: May cause irritation.
Skin: May cause irritation.
Inhalation: May be harmful and cause irritation of respiratory tract.
Ingestion: May be harmful and cause irritation.

Chronic Effects None known.

4. First Aid Measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

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

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

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

Notes to Physician: Treat symptomatically.

5. Firefighting Measures

Unsuitable Extinguishing Media: N/A

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

Unsuitable Extinguishing Media: N/A

Specific Hazards: The decomposition can lead to release of irritating gases and vapors.

Precautions for Firefighters: Wear self contained breathing apparatus for fire fighting if necessary.

Further information:

NFPA Health: 1 Flammability: 0 Instability: 0 Physical hazards: N/A

6. Accidental Release Measures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment.

Environmental precautions: Do not let product enter drains.

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

7. Handling and Storage

Handling Wear personal protective equipment. Ensure adequate ventilation.

Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls/Personal Protection

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location.

Ensure adequate ventilation, especially in confined areas.

Exposure Guidelines

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

Exposure controls:

Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection:

Tightly fitting safety goggles. Faceshield (8-inch minimum).

Use equipment for eye protection tested and approved under appropriate government standards.

Skin 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.

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.

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.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Form:	White Light yellow liquid
Odor:	Slight characteristic
Odor Threshold:	N/A
pH:	1.8
Boiling Point/Range:	100°C / 212°F
Melting point/freezing point:	0°C / 32°F
Initial boiling point and boiling range:	N/A
Flash point:	N/A
Evaporation rate:	N/A
Flammability (solid, gas):	N/A
Vapour pressure:	N/A
Vapour density:	N/A
Relative density:	N/A
Partition coefficient: octanol/water:	N/A
Decomposition temperature:	N/A

(N/A = no data available)

10. Stability and Reactivity

Stability Stable under recommended storage conditions

Conditions to Avoid Excess heat and Incompatible products.

Incompatible materials

Strong oxidizing agents, Strong reducing agents, strong bases, powdered metals.

Hazardous

decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂).

Hazardous Polymerization: Not occur.

11. Toxicology Information

Acute toxicity N/A

Chronic Toxicity

Germ cell mutagenicity N/A
Carcinogenicity N/A

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

Reproductive toxicity N/A

Specific target organ toxicity - single exposure N/A

Specific target organ toxicity - repeated exposure N/A

Aspiration hazard N/A

Additional Information (RTECS) N/A

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

12. Ecological Information

Toxicity: N/A
Persistence and degradability: N/A
Bioaccumulative potential: N/A
Mobility in soil: N/A
Results of PBT and vPvB assessment: N/A

13. Disposal Considerations

Waste treatment methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport Information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety and environmental regulations: N/A
Chemical Safety Assessment N/A

Full text of H-Statements referred to under sections 2 and 3.

H272 May intensify fire; oxidiser.
H314 Causes severe skin burns and eye damage.
Ox. Sol. Oxidizing solids
Skin Corr. Skin corrosion

Full text of R-phrases referred to under sections 2 and 3

C Corrosive
R 8 Contact with combustible material may cause fire.
R34 Causes burns.
R35 Causes severe burns.
O Oxidising

16. Other Information

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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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VB-3004-2 Schiff's Reagent MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Schiff 's Reagent
Product Number VB-3004-2
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC 9605 Medical Center Dr. Suite 315, Rockville, MD 20850
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Composition:

Name	CAS#	%by weight
Fine Activated Charcoal	7740-44-0	0.5 w/v
1 N Hydrogen chloride	7647-01-0	10 v/v
Potassium disulfate	7646-93-7	1 w/v
Basic fuchsin	569-61-9	0.5 w/v
Water	7732-18-5	Balance

3. Hazards Identification

Potential Acute Health Effects:

Hazardous in case of ingestion, of inhalation.

Slightly hazardous in case of skin contact (corrosive, irritant, permeator) or of eye contact (irritant). **Potential**

Chronic Health Effects:

The substance is toxic to lungs, mucous membranes.

Repeated or prolonged exposure to the substance can produce target organs damage.

4. First Aid Measures

Eye contact:

Flush eye with water while lifting the upper and lower lids apart.

Get medical attention if irritation persists.

Skin contact:

Wash with soap and water. Get medical attention if irritation develops.

Remove contaminated clothing and launder before reuse.

Inhalation:

Remove victim to fresh air. Get medical attention if irritation persists.

Ingestion:

If small quantities are swallowed, rinse out mouth with water. Do not induce vomiting.

Never give anything by mouth to an unconscious or drowsy person.

If large amounts are swallowed or if irritation or discomfort occurs, get medical attention.

Most Important symptoms:

May cause eye, skin and respiratory irritation.

5. Firefighting Measures

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

Special Hazards Arising from the Substance or Mixture: No data available

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

6. Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Neutralize the residue with a dilute solution of sodium carbonate. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through p. 3 the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

7. Handling and Storage

Precautions:

Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

8. Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection: Face shield, Lab coat, Vapor respirator Gloves and Boots. Be sure to use an approved/certified respirator or equivalent..

Personal Protection in Case of a Large Spill: Splash goggles, Full suit, Vapor respirator, Boots and Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Sodium metabisulfite TWA: 5 from ACGIH (TLV) [United States] [1995] Hydrogen chloride TWA: 5 CEIL: 5 from OSHA (PEL) [United States] TWA: 7.5 CEIL: 7 from OSHA (PEL) [United States]. Consult local authorities for acceptable exposure limits.

9. Physical and Chemical Properties

Information on basic Physical and Chemical Properties

Appearance:	Colorless liquid
Odor:	Odorless
Odor Threshold:	N/A
pH (1% soln/water):	Acidic
Melting/Freezing Point:	N/A
Boiling Point:	100°C (212°F)
Flash Point:	N/A
Evaporation	N/A
Flammability:	N/A
Vapor Pressure:	The highest known value is 2.3 kPa (@ 20°C) (Water).
Vapor Density(Air=1):	The highest known value is 0.62 (Air = 1) (Water).
Relative Density:	1.45
Solubility:	Easily soluble in cold water. Soluble in hot water, methanol.
Explosive Properties:	N/A
Oxidizing Properties:	N/A
Specific Gravity (H2O= 1):	Weighted average: 1.01 (Water = 1)
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Other Information:	N/A

10 Stability and Reactivity

Chemical Stability:

Stable under recommended storage conditions.

Hazardous Reactions:

None expected.

Conditions to Avoid:

No data available

Incompatible Materials:

Strong oxidizing agents

Hazardous Decomposition Products:

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: oxides of sulfur, hydrogen chloride, chlorine.

11. Toxicology Information

Information on Toxicological Effects:

Potential Health Effects:

Eye Contact:

May cause irritation.

Skin contact:

May cause mild irritation.

Prolonged or repeated exposure may cause dryness or dermatitis.

Inhalation:

May cause mild respiratory tract irritation.

Ingestion:

Small amounts are not anticipated to cause adverse effects.

Sulfite sensitive individuals may experience a severe allergic reaction.

Acute toxicity:

Hydrochloric acid:

LD50 oral rat 238-277 mg/kg; LC50 inhalation rat 3124 ppm/1 hr;

LD50 dermal mouse 1449 mg/kg.

Basic Fuchsin:

LD50 oral mouse 5,000 mg/kg .

Sodium bisulfate:

LD50 oral rat 2,000 mg/kg

Chronic Effects on Humans:

Germ Cell Mutagenicity: N/A

Carcinogenicity:

Basic classified by IARC as “Possibly Carcinogenic to Humans” and by NTP.

Reproductive Toxicity: N/A

Specific Toxicity:

Damaging to lungs in high concentrations.

12. Ecological Information

Ecotoxicity: N/A

BOD5 and COD: N/A

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely.

However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:

The products of degradation are more toxic.

Special Remarks of Biodegradation: N/A

13. Disposal Considerations

Waste Disposal:

Dispose in accordance with local, state and national regulations.

14. Transport Information

DOT Classification: Not a DOT controlled material (U.S.A.)

Identification: N/A

Special Provisions for Transport: N/A

15. Regulatory Information

U.S. Regulations:

California proposition 65:

This product contains the following chemicals which are known to the State of California to cause cancer or reproductive toxicity: Basic Fuchsin (cancer)

HMIS (U.S.A.):

Health Hazard: 3 Fire Hazard: 0 Reactivity: 0 Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 1 Flammability: 0 Reactivity: 0 Specific hazard:

OSHA Hazard Classification: Carcinogen

16. Other Information

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Abbreviations and acronyms:

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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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VB-3004-3 Mayer's Hematoxylin Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Mayer's Hematoxylin Solution
Product number VB-3004-3
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC 9605 Medical Center Dr. Suite 315, Rockville, MD 20850
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/Information on Ingredients

Composition:

Name	CAS #	% by weight
Hematoxylin	517-28-2	0.1
Sodium Iodate	7681-55-2	0.01
Aluminum Ammonium Sulfate	7784-26-1	5
Acetic Acid	64-19-7	<2
Water	7732-18-5	Balance

3. Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS Label elements, including precautionary statements

Hazard statement(s)

H302 Harmful if swallowed.

Precautionary statement(s)

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Rinse mouth.

P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

4. First Aid Measures

Description of 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 Wash off with soap and plenty of water. Consult a physician.

In case of eye contact Flush eyes with water as a precaution.

If swallowed Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed No data available

5. Firefighting Measures

Extinguishing media

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

Special hazards arising from the substance or mixture No data available

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

Further information No data available

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

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. For personal protection see section 8.

Environmental precautions Do not let product enter drains.

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.

Reference to other sections For disposal see section 13.

7. Handling and Storage**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Air and light sensitive.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. Exposure Controls/Personal Protection**Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Hazardous components without workplace control parameters

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

Eye/face protection Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin 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.

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.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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).

Control of environmental exposure Do not let product enter drains.

9. Physical and Chemical Properties**General information**

Form	Liquid
Appearance	N/A
Odor	N/A
Odor Threshold	N/A
Evaporation rate	N/A
Flammability (solid, gas)	N/A

Oxidizing properties	N/A
Water solubility	N/A
Upper explosion limit	N/A
Lower explosion limit	N/A
Vapor Pressure	N/A
Vapor density	N/A
Viscosity	N/A
pH value	N/A
Boiling point / boiling range °C	N/A
Melting point / melting range °C	N/A
flash point °C	N/A
Autoignition Temperature °C	N/A

10. Stability and Reactivity

Reactivity:	N/A
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	N/A
Conditions to avoid:	N/A
Incompatible materials:	Strong oxidizing agents
Hazardous decomposition products:	Formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas, Aluminum oxide
Other decomposition products	N/A

11. Toxicology Information

Information on toxicological effects

Acute toxicity

No toxicology information is available.

Potential Health Effects

Eyes	May cause eye irritation with susceptible persons.
Skin	May cause skin irritation in susceptible persons.
Inhalation	May be harmful by inhalation.
Ingestion	May be harmful if swallowed.
Carcinogenic effects	None.
Mutagenic effects	None.
Reproductive toxicity	None.
Sensitization	None.

12. Ecological Information

Toxicity:	N/A
Persistence and degradability:	N/A
Bioaccumulative potential:	N/A
Mobility in soil:	N/A
Results of PBT and vPvB assessment:	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects:	N/A

13. Disposal compositions

Dispose of contents/containers in accordance with local regulations.

14. Transport information

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

15. Regulatory information

DOT Not regulated

US Federal Regulations

SARA 313

This product is not regulated by SARA.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain HAPs.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

WHMIS Hazard Class

Non-controlled

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. Other information

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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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