

**MATERIAL SAFETY DATA SHEET (MSDS)****Kit Name: VitroView™ Verhoeff Elastic Masson Trichrome Stain Kit****SKU #: VB-3034****Components:**

VB-3034-1	Ethanol saturated with picric acid
VB-3034-2	Verhoeff's elastic stain solution A
VB-3034-3	Verhoeff's elastic stain solution B
VB-3034-4	Verhoeff's elastic stain solution C
VB-3034-5	Biebrich scarlet-acid fuchsin solution
VB-3034-6	Phosphomolybdic-Phosphotungstic Acid Solution
VB-3034-7	Aniline Blue Solution
VB-3034-8	1 % acetic acid solution

VB-3034-1 Ethanol saturated with picric acid MSDS**1. Identification of the Substance/Mixture and Company****Identification of the substance or mixture**

Product Name Ethanol saturated with picric acid
Product number VB-3034-1
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients**Composition:**

Component	CAS#	Weight (%)
Picric Acid	88-89-1	4-5
ethanol	64-17-5	90-100

3. Hazards Identification**Description of first aid measures**

General information: Immediately remove any clothing soiled by the product.
After inhalation: Supply fresh air; consult doctor in case of complaints.
After skin contact: Immediately rinse with water.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing: If symptoms persist consult doctor.
Information for doctor: Most important symptoms and effects, both acute and delayed: No further relevant information available.
Indication of any immediate medical attention and special treatment needed:
 No further relevant information available

4. First Aid Measures**Description of first aid measures**

General information: Immediately remove any clothing soiled by the product.
After inhalation: Supply fresh air; consult doctor in case of complaints.
After skin contact: Immediately rinse with water.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing: If symptoms persist consult doctor.
Information for doctor: Most important symptoms and effects, both acute and delayed: No further relevant information available.
Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5. Fire and Explosion Data

Extinguishing media Suitable extinguishing agents: CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture: No further relevant information available.

Advice for firefighters

Protective equipment: No special measures required.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Wear protective equipment. Keep unprotected persons away.
Environmental precautions: Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13. Ensure adequate ventilation. **Reference to other sections**

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

7. Handling and Storage

Handling:

Precautions for safe handling: No special precautions are necessary if used correctly. **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke. Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities Storage: Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: Keep receptacle tightly sealed. Store in cool, dry conditions in well sealed receptacles.

Specific end use(s): No further relevant information available.

8. Exposure Controls / Personal Protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

64-17-5 ethanol	PEL	Long-term value: 1900 mg/m ³ , 1000 ppm
	REL	Long-term value: 1900 mg/m ³ , 1000 ppm
	TLV	Short-term value: 1880 mg/m ³ , 1000 ppm

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls:

Personal protective equipment:

General protective and hygienic measures: Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work.

Breathing equipment: Not required.

Protection of hands:

Protective gloves The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection: Tightly sealed goggles

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Form:	Fluid
Odor:	Characteristic
Odor Threshold:	N/A
pH:	Not determined
Boiling Point/Range:	178 °C (172 °F)
Melting point/freezing point:	Undetermined
Initial boiling point and boiling range:	N/A
Flash point:	13 °C (55 °F)
Flammability (solid, gas):	N/A
Ignition temperature:	425 °C (797 °F)
Decomposition temperature:	Not determined.
Auto igniting:	Product is not self igniting.
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
Explosion limits:	
Lower	3.5 Vol %
Upper	15.0 Vol %
Vapour pressure:	59 hPa (44 mm Hg)
Vapour density:	N/A
Relative density:	N/A
Evaporation rate:	N/A
Solubility in / Miscibility with Water:	Fully miscible.
Segregation coefficient (n-octanol/water)	Not determined
Dynamic:	Not determined

Kinematic: Not determined
Other information No further relevant information available.

10. Stability and Reactivity Data

Reactivity: No further relevant information available.

Chemical stability:

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid: No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: No dangerous decomposition products known.

11. Toxicological Information

Information on toxicological effects Acute toxicity:

Primary irritant effect:

- On the skin: No irritant effect.
- On the eye: No irritating effect.
- Sensitization: No sensitizing effects known.

Carcinogenic categories IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration) None of the ingredients are listed.

12. Ecological Information

Toxicity:

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13. Disposal Considerations

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14. Transport Information

UN proper shipping name DOT, ADR, AND, IMDG, IATA	Void
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Void
Transport hazard class DOT, ADR, IMDG, IATA	Void
Packing group DOT, ADR, IMDG, IATA	Void
Environmental hazards Marine pollutant	Not applicable.
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable
UN "Model Regulation"	-

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture SARA

Safety, health and environmental regulations/legislation specific for the substance or mixture SARA

Section 355 (extremely hazardous substances): None of the ingredients are listed.

Section 313 (Specific toxic chemical listings): None of the ingredients is listed.

TSCA (Toxic Substances Control Act): All ingredients are listed.

Proposition 65

Chemicals known to cause cancer: None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause developmental toxicity: 64-17-5 ethanol.

Carcinogenic categories EPA (Environmental Protection Agency) None of the ingredients are listed.

TLV (Threshold Limit Value established by ACGIH) 64-17-5 ethanol

NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration) None of the ingredients are listed.

GHS label elements Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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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VB-3034-2 Verhoeff's elastic stain solution A MSDS

1. Identification of the Substance/Mixture and Company**Identification of the substance or mixture**

Product Name Verhoeff's elastic stain solution A
Product number VB-3034-2
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, 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 #
Hematoxylin	517-28-2
Ethyl alcohol	64-17-5
Water	7732-18-5

3. Hazards Identification**GHS CLASSIFICATION:**

Flammable liquid Category 2; Acute toxicity, oral Category 5; Acute toxicity, dermal Category 5; Serious eye damage/eye irritation Category 2B

Signal Word: Danger!

Hazard Phrases	
H225	Highly flammable liquid and vapor.
H303+H313	May be harmful if swallowed or in contact with skin.
H320	Causes eye irritation.

Precautionary Phrases	
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P280	Wear protective gloves/ eye protection/ face protection.
P242	Use only non-sparking tools.
P233	Keep container tightly closed.
P243	Take precautionary measures against static discharge.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or physician.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN: Remove/take off all contaminated clothing. Rinse skin with water shower

4. First Aid Measures

Eye Exposure: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

Oral Exposure: If Swallowing seek immediate medical advice.

Inhalation Exposure: If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

5. Fire Fighting Measures

NFPA

Health: 2 Flammability: 4 Reactivity: 1

General Information:

Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

Flash Point: 16.6 deg C (61.88 deg F)

Autoignition Temperature: 363 deg C (685.40 deg F)

Explosion Limits: Upper: 19.0 vol %
Lower: 3.3 vol %

6. Accidental Release Measures**Small spill and leak:**

Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8). Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

Large spill and leak:

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

7. Handling and Storage**Handling:**

Do not get in eyes, on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use empty containers to retain product, residue can be hazardous. Do not reuse container.

Storage:

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container, protected from direct sunlight. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure Controls, Personal Protection**Engineering Controls:**

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ethanol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m ³ TWA 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m ³ TWA

OSHA Vacated PELs: Ethanol: 1000 ppm TWA; 1900 mg/m³ TWA

Personal Protective Equipment**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Engineering Controls: Mechanical exhaust

Personal Protective:

Other: Wear appropriate government approved respirator, chemical-resistant gloves.

Equipment:

safety goggles, other protective clothing.

9. Physical and Chemical Properties

Physical State:	Liquid
Appearance:	Amber. Darkens with age.
Odor:	Alcohol-like
pH:	N/A
Vapor Pressure (mmHg):	40 @ 19°C
Vapor Density(AIR = 1):	1.6
Evaporation Rate:	N/A
Viscosity:	N/A
Boiling Point:	N/A
Solubility:	Soluble in water.

10. Stability and Reactivity**Chemical Stability:**

Stable under normal temperatures and pressures.

Conditions to Avoid:

Incompatible materials, ignition sources, excess heat, oxidizers.

Incompatibilities with Other Materials:

Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.

Hazardous Decomposition Products:

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide

Hazardous Polymerization:
Will not occur.

11. Toxicological Information

Hematoxylin RTECS:	MH7875000 LD50/LC50: N/A
Ethyl Alcohol RTECS:	KQ6300000 Oral (LD50): Acute mg/kg [Rat]. 3450 mg/kg [Mouse].
Routes of Entry:	Multiple routes: May be harmful by inhalation, ingestion, or skin absorption.
Conditions aggravated by exposure:	The toxicological properties have not been thoroughly investigated.
Solution Carcinogenicity:	Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology:

Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".

Teratogenicity:

Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception) Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence.

Reproductive Effects:

Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).

Mutagenicity:

DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast = 12000 ppm.; Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous).

Other Studies:

Standard Draize Test(Skin, rabbit) = 20 mg/24H (Moderate) Standard Draize Test: Administration into the eye (rabbit) = 500 mg (Severe).

12. Ecological Information

Toxicity:

Acute fish Toxicity (Ethanol)

LC50 *Oncorhynchus mykiss* (rainbow trout) >10,000 mg/l 96hr

LC50 *Pimephales promelas* (fathead minnow) >13,400 mg/l 96hr

Persistence and Degradability

Biodegradation is expected

Bioaccumulative Potential

Bioaccumulation is unlikely

Mobility in Soil

N/A

PBT and vPvB Assessment

Not required

13. Disposal Information

Waste Disposal Method:

Unused product: dispose as a regulated hazardous waste. Spent product or spill cleanup follow all provincial, local, state, and federal regulations..

14. Transport Information

DOT Proper shipping name : Alcohols, N.O.S. UN1987 PG II
Hazard class 3 (flammable)

15. Regulatory Information

U.S. Department of Transportation:

DOT Classification: F

Risk Phrases:

R11 Highly flammable.
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed
R36/38 Irritating to eyes and skin
R42/43 May cause sensitization by inhalation and skin contact
R61 May cause harm to the unborn child
R48/20/21/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

Safety Phrases:

S37/39 Wear suitable gloves and eye/face protection
S20/21 When using do not eat, drink or smoke
S2 Keep out of the reach of children
S16 Keep away from sources of ignition - No smoking
S33 Take precautionary measures against static discharges
S7 Keep container tightly closed.
S9 Keep container in a well-ventilated place
S24/25 Avoid contact with skin and eyes

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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VB-3034-3 Verhoeff's elastic stain solution B MSDS

1. Identification of the Substance/Mixture and Company**Identification of the substance or mixture**

Product Name Verhoeff's elastic stain solution B
Product number VB-3034-3
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Chemical Description: An aqueous solution of ferric chloride and hydrochloric acid.

Name	CAS #.
Ferric Chloride	10025-77-1
Acetic acid	64-19-7
Water	7732-18-5

3. Hazards Identification

GHS Classification Acute Oral Toxicity Category 5, Skin Irritation Category 3;
 Serious Eye Damage Category 2B

Signal Word Warning!

Hazard Phrases	
H303	May be harmful if swallowed.
H316	Causes mild skin irritation.
H320	Causes eye irritation.

Precautionary Phrases	
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
P337+P315	If eye irritation persists, get immediate medical attention.
P312	Call a POISON CENTER/doctor/physician if you feel unwell

4. First Aid Measures**Eyes:**

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation persists

Skin:

Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. If irritation persists, get medical attention.

Ingestion:

Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Inhalation:

Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms worsen.

5. Fire Fighting Measures

Flammability of the Product:

Flash Point: Not available

Autoignition Temperature: Not available

NFPA Hazard Classification:

Health: 1 Flammability: 0 Reactivity: 0 Other:

HMIS Hazard Classification:

Health: 1 Flammability: 0 Reactivity: 0 Protection: B

Extinguishing Media:

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

Special Fire Fighting Procedures:

As with any fire, wear personal protection equipment, including a self-contained breathing apparatus (S.C.B.A.)

6. Accidental Release Measures

Small spill and leak:

Wear chemical resistant clothing, gloves and eye protection. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

Large spill and leak:

Wear chemical resistant clothing, gloves and eye protection. Wear NIOSH/MSHA approved breathing apparatus. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

Section 6 Notes:

Keep material away from heat, flame, ignition sources, and reactive materials. Don't allow product to enter drains.

7. Handling and Storage

Handling:

Avoid contact with skin and eyes. Wash thoroughly after handling. Avoid breathing vapor.

Storage:

Store in well ventilated area. Keep container tightly closed. Store at 15-30°C

8. Exposure Controls / Personal Protection

Engineering Controls:

Working areas should be adequately large and well ventilated to prevent concentration of vapors. Provide mechanical exhaust ventilation or other engineering controls to keep airborne concentration of vapors below their respective threshold limits.

Respiratory Protection: Avoid breathing vapor.

Eye Protection:

Safety glasses or goggles are required

Skin Protection:

Chemical resistant gloves are required. Glove material must be resistant to the components of this product.

Other Protective Clothing or Equipment:

Protective clothing is required, lab coat or apron.

Work Hygienic practice:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash

stations and safety showers are close to the workstation location.

Exposure guidelines:

Component	Source	Type	Value
Hydrochloric acid	OSHA PEL	TWA	5 ppm
	OSHA PEL	STEL	5 ppm
	ACGIH TLV	TWA	5 ppm
	ACGIH TLV	STEL	1 ppm
	NIOSH REL	TWA	1 ppm
	NIOSH REL	STEL	1 ppm
Ferric Chloride	OSHA PEL	TWA	1 mg(Fe)/m3
	ACGIH TLV	TWA	1 mg(Fe)/m3

9. Physical and Chemical Properties

Appearance:	Clear yellow
Odor:	pungent odor
Physical State:	Liquid
pH AS Supplied:	Unknown
Boiling Point:	100°C
Melting Point / Freezing Point:	Unknown
Vapor Pressure (mmHg):	18 @ 20°C
Vapor Density (AIR = 1):	0.6
Evaporation Rate: (water=1)	1
Solubility in water:	Soluble in water
Molecular Weight:	Mixture
Viscosity:	Not established

10. Stability and Reactivity Data

Stability: Product is stable under normal conditions of use.

Conditions to avoid (Stability): Excessive heat, direct sunlight

Incompatibility (Material to avoid): Strong alkalis

Hazardous decomposition or by-products: Hydrogen chloride, oxides of carbon.

Hazardous polymerization: No hazardous polymerization

11. Toxicological Information

Routes of entry: Skin/eye contact, inhalation, and ingestion.

Acute toxicity:

Oral LD50	N/A
Inhalation LC50	N/A
Dermal LD50	N/A
Other information on acute toxicity	N/A
Skin corrosion/irritation	Irritating to skin and mucous membranes
Serious eye damage/eye irritation	Irritating to eyes.
Respiratory or skin sensitization	N/A
Germ cell mutagenicity	N/A

Carcinogenicity:

IARC

Hydrochloric Acid is listed as Group 3 – Not classifiable as to carcinogenicity in humans

NTP

None of the components are listed.

Specific target organ toxicity: N/A
Aspiration hazard: N/A

Potential health effects:

Inhalation: May be irritating to mucous membranes.

Ingestion: While the toxicity of this compound is low, large doses may cause nausea, vomiting, diarrhea.

Skin Contact: Mild skin irritation.

Eye Contact: May be irritating to eyes.

Signs and Symptoms of Exposure:

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

12. Ecological Information

TOXICITY:

Fish: No relevant studies identified

Crustacea: No relevant studies identified

Algae/Aquatic plants: No relevant studies identified

Other organisms: No relevant studies identified

PERSISTANCE AND DEGRADABILITY: Biodegradable

BIOACCUMULATIVE POTENTIAL: No relevant studies identified

MOBILITY IN SOIL: Miscible in water. May spread in water systems.

PBT and vPvB ASSESSMENT: Not required.

SECTION 12 NOTES: Iron salts are expected to be toxic to aquatic life.

13. Disposal Considerations

WASTE DISPOSAL METHOD:

Unused product: dispose as a regulated hazardous waste. Spent product spill cleanup follow all provincial, local, state, and federal regulations.

RCRA HAZARD CLASS: Not classified

14. Transport Information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. Regulatory Information

United States

HCS Classification: Irritant

U.S. Federal regulations:

TSCA (Toxic Substance Control Act): All of the components are listed on the TSCA Inventory.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: Hydrochloric acid RQ 5000

SARA 302/304/311/312 hazardous chemicals:

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA 313 Listed: Ferric Chloride CAS 10025-77-1

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):

**DEA List I & II Chemicals
(Precursor Chemicals):**

Not listed

RTK STATES: Hydrochloric Acid CAS #7647-01-0 CA, FL, MA, MN, PA, NJ, RI, CT

CEPA DSL / CEPA NDSL:

All components are listed or exempted. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

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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VB-3034-4 Verhoeff's elastic stain solution C MSDS

1. Identification of the Substance/Mixture and Company**Identification of the substance or mixture**

Product Name Verhoeff's elastic stain solution C
Product number VB-3034-4
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Component	CAS NO.	Weight(%)
Potassium Iodide	7681-11-0	1-5
Iodine	7553-56-2	1-5

3. Hazards Identification

Specific target organ systemic toxicity (repeated exposure) Category 2

GHS Label elements, including precautionary statements**Signal Word**

Warning

Hazard statements

H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - EU (§28, 1272/2008)

P260 - Do not breathe

dust/fume/gas/mist/vapors/spray P314 - Get medical advice/ attention if you feel unwell

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

Other information

No information available

4. First Aid Measures

Eyecontact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15minutes.
Skincontact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Inhalation Move to freshair.
Ingestion Clean mouth with water. Drink plenty ofwater.
Notesto physician Treat symptomatically.

5. Fire and Explosion Data

Flammableproperties Not flammable.
Flashpoint not determined
Suitableextinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data**Sensitivity toMechanical Impact** None.**Sensitivity toStatic 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 to prevent contact with skin and eyes.

6. Accidental Release Measures

Personal Precautions	Ensure adequate ventilation.
Environmental Precautions	Try to prevent the material from entering drains or water courses
Methods for Containment and Clean Up	Cover liquid spill with sand, earth or other noncombustible absorbent material. Cover powder spill with plastic sheet or tarp to minimize spreading. Pick up and transfer to properly labeled containers.

7. Handling and Storage

Advice on safe handling Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Remove and wash contaminated clothing before re-use. Do not breathe vapors or spray mist. Do not eat, drink or smoke when using this product.

Technical measures/Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children

8. Exposure Controls / Personal Protection**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH
Potassium Iodide 7681-11-0	TWA: 0.01 ppm inhalable fraction and vapor		
Iodine 7553-56-2	STEL: 0.1 ppm aerosol and vapor TWA: 0.01 ppm inhalable fraction and vapor	(vacated) Ceiling: 0.1 ppm (vacated) Ceiling: 1 mg/m ³ Ceiling: 0.1ppm Ceiling: 1mg/m ³	IDLH: 2 ppm Ceiling: 0.1ppm Ceiling: 1mg/m ³

NIOSH IDLH: Immediately Dangerous to Life or Health

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering measures

Showers
Eyewashstations
Ventilation systems

Personal Protective Equipment**Eye/face Protection**

Tightly fitting safety goggles.

Skin and body protection

Long sleeved clothing. Protective gloves.

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.

9. Physical and Chemical Properties

Physical State	liquid
Appearance	No information available
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No information available

Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	Not applicable
Vapor Pressure	No information available
Vapor Density	No data available
Specific Gravity	No information available
Solubility	Soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable

10. Stability and Reactivity Data

Stability	Stable under recommended storage conditions.
Conditions to Avoid	None known
Incompatible Materials	Strong reducing agents, Alkali metals
Hazardous Decomposition Products	None known
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological Information

Acute Toxicity	Product does not present an acute toxicity hazard based on known or supplied information		
Product Information			
Component Information	LD50 Oral	LD50 Dermal	LC50 Inhalation
Iodine	14g/kg (Rat)		
Target Organ Effects	Thyroid		

12. Ecological Information

Ecotoxicity
The environmental impact of this product has not been fully investigated.

13. Disposal Considerations

Waste Disposal Methods	Dispose of in accordance with federal, state, and local regulations.
Contaminated packaging	Do not re-use empty containers.

14. Transport Information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. Regulatory Information

U.S. Federal Regulations
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	no
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.

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

International Regulations

Chemical Name	Carcinogen Status	Exposure limits
Iodine		Mexico: Ceiling 0.1 ppm Mexico: Ceiling 1 mg/m ³

WHMIS Note: 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

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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VB-3034-5 Biebrich Scarlet-Acid Fuchsin Solution MSDS**1. Identification of the Substance/Mixture and Company****Identification of the substance or mixture**

Product Name Biebrich Scarlet-Acid Fuchsin Solution
Product number VB-3034-5
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Component	CAS NO.
Water	7732-18-5
Biebrich Scarlet	4196-99-0
Acid Fuchsin	123334-10-1
Acetic Acid	64-19-7

3. Hazards Identification

GHS Classification: Skin Sensitization Category 1B, Skin Irritation Category 3
 Signal Word: Warning!

Hazard Phrases	
H317	May cause an allergic skin reaction.
H315	Causes skin irritation.

Precautionary Phrases	
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P280	Wear protective gloves/ eye protection/ face protection.

4. First Aid Measures**Eyes:**

Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur.

Skin:

In case of contact, flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.

Ingestion:

Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Inhalation:

Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms occur.

5. Fire and Explosion Data

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. - Carbon oxides

6. Accidental Release Measures

Personal precautions

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

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.

7. Handling and Storage

Precautions for safe handling

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

Conditions for safe 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.

8. Exposure Controls / Personal Protection

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 respirator 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

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 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.

Environmental Exposure Control:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Work Hygiene Practice:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash station and safety.

Exposure Guidelines:

Component	Source	Type	Value
Acetic Acid	OSHA PEL	TWA	10 ppm (25 mg/m ³)
	NIOSH REL	TWA	10 ppm (25 mg/m ³)
	ACGIH TLV	TWA	10 ppm

9. Physical and Chemical Properties

Appearance	Dark Red
Odor	Slight vinegar odor
Physical state	liquid
pH as supplied	Not Available
Boiling point	Not Available
Melting point/freezing point	Not Available
Vapor pressure (mmHg)	Not Available
Vapor density	Not Available
Evaporation	Not Available
Solubility Water	Soluble in water
Molecular Weight	Mixture
Viscosity	Not established

10. Stability and Reactivity Data**Chemical stability**

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Materials to avoid

Oxidizing agents, Strong oxidizing agents, Metals, Amines, Alcohols, Peroxides, permanganates, e.g. potassium permanganate, Soluble carbonates and phosphates, Hydroxides

Hazardous decomposition products

formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. Toxicological Information**Acute toxicity**

Oral LD50	no data available
Inhalation LC50	no data available
Dermal LD50	no data available
Skin corrosion/irritation	no data available

Serious eye damage no data available

Germ cell mutagenicity no data available

Carcinogenicity no component of this product

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

12. Ecological Information

Toxicity no data available

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 no data available

13. Disposal Considerations

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 afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. Transport Information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. Regulatory Information

United States

OSHA/HCS Classification:

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

U.S. Federal regulations:

TSCA (Toxic Substance Control Act): All componenets are listed on the TSCA Inventory

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals:

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

CEPA DSL / CEPA NDSL : All components are listed or exempted.

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

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.

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HMIS: Hazardous Materials Identification System (USA)

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

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VB-3034-6 Phosphomolybdic-Phosphotungstic Acid Solution MSDS**1. Identification of the Substance/Mixture and Company****Identification of the substance or mixture**

Product Name Phosphomolybdic -Phosphotungstic Acid Solution
Product number VB-3034-6
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Composition	CAS#
Phosphomolybdic Acid	51429-74-4 2.5
Phosphotungstic Acid v	12501-23-4
Water	7732-18-5

3. Hazards Identification**GHS Classifications****Health Hazards**

H315-Skin Corrosion/Skin Irritation: 2
 H318-Eye damage/Irritation: 1

Physical Hazards:

Not classified

Environmental Hazards:

Aquatic acute environmental Hazards: Not classified
 Chronic environmental Hazards: 4

Pictograms or Hazard symbols and Hazard statement.

Warning: Causes skin irritation.
 Danger: Causes serious eye damage

Precautionary Statement**H315**

P264-Wash thoroughly after handling.
 P280-Wear protective gloves.
 P302+P352-IF ON SKIN: Wash with plenty of soap and water.
 P332+P313-If skin irritation occurs: Get medical advice/attention.
 P362-Take off contaminated clothing and wash before reuse

H318

P280-Wear eye protection and 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.

DANGER! Causes skin irritation! Causes serious eye damage! Corrosive!

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling

4. First Aid Measures**Eye Exposure:**

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Dermal Exposure:

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

Oral Exposure:

If Swallowing seek immediate medical advice.

Inhalation Exposure:

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

5. Fire Fighting Measures

Firefighters should wear proper protective clothing and self contained breathing apparatus with full piece operated in positive pressure mode to prevent contact with skin and eyes.

Extinguishing Media:

Use water spray, dry chemical powder, or appropriate foam.

Flash Point: N/A

NFPA Rating: (estimated)

Health: 2; Flammability: 0; Instability: 0

6. Accidental Release Measures**Procedure of Personal Precaution:**

Wear protective gear.

Methods for Cleaning up:

Absorb with sand, earth or vermiculite. Carefully sweep up and containerize for proper disposal.

7. Handling and Storage

Use care when handling. Wash thoroughly after handling. Store capped at room temperature. Keep away from incompatible materials.

8. Exposure Controls / Personal Protection**Engineering Controls:**

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

9. Physical and Chemical Properties

Physical State:	Liquid
Appearance:	Yellow
Odor:	none
Solubility:	Soluble in water
pH:	1.0-1.4 water.
Vapor Pressure:	2.3 kPa @ 20°C
Vapor Density:	0.62 (Air=1)
Evaporation Rate:	N/A
Viscosity:	N/A
Boiling Point:	100 °C

10. Stability and Reactivity Data

Chemical Stability:	Stable under ordinary conditions of use and storage.
Conditions to Avoid:	N/A
Incompatibilities with Other Materials:	N/A
Hazardous Decomposition Products:	N/A
Hazardous Polymerization:	Will not occur.

11. Toxicological Information

RTECS#:**LD50/LC50:**

CAS# 12501-23-4:	N/A
CAS# 51429-74-4:	N/A

Carcinogenicity:

CAS# 12501-23-4:	Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 51429-74-4:	Not listed by ACGIH, IARC, NTP, or CA Prop 65.

12. Ecological Information

Ecotoxicity:

CAS# 12501-23-4:	N/A
CAS# 51429-74-4:	N/A

Environmental:	N/A
Physical:	N/A
Other:	N/A

13. Disposal Considerations

Disposal method:

Handled as hazardous waste and sent to an RCRA approved incinerator or disposed in an RCRA approved wasted facility.

14. Transport Information

DOT

Non-Regulated

15. Regulatory Information

Risk Phrases:

R22 Harmful if swallowed.
R38 Irritating to skin.
R41 Risk of serious damage to eyes.

Safety Phrases:

S26/28 In case of contact with eyes or skin, rinse immediately with plenty of water and seek medical advice.
S36 Wear suitable protective clothing.

16. Other Information

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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-3034-7 Aniline Blue Solution MSDS**1. Identification of the Substance/Mixture and Company****Identification of the substance or mixture**

Product Name Aniline Blue Solution
Product number VB-3034-7
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 29850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients

Composition	CAS #
Aniline Blue	28631-66-5
Glacial Acetic Acid	64-19-7
Water	7732-18-5

3. Hazards Identification**GHS Classifications****Health Hazards**

H315 -Skin Corrosion/Skin Irritation: 2

H320-Eye damage/Irritation: 2B

H317-Skin Dermal Sensitization-1

Physical hazards

H290-Corrosive to Metals: 1

Environmental Hazards

Aquatic acute environmental Hazards: Not classified

Chronic environmental Hazards: Not classified

Precautionary Statement**H315**

P264-Wash thoroughly after handling.

P280-Wear protective gloves.

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

P332+P313-If skin irritation occurs: Get medical advice/attention.

P362-Take off contaminated clothing and wash before reuse

H320

P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313-If eye irritation persists: Get medical advice/attention.

H317

P272 Contaminated work clothing should not be allowed out of the work place.

P333+P313 IF ON SKIN: Wash with plenty of soap and water.

P363 Wash contaminated clothing before reuse.

H290

P234-Keep only in original container.

P390-Absorb spillage to prevent material damage.
P406-Store in corrosive resistant/container with a resistant inner liner.

4. First Aid Measures

Eye Exposure:

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Dermal Exposure:

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

Oral Exposure:

If Swallowing seek immediate medical advice.

Inhalation Exposure:

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

5. Fire Fighting Measures

Firefighters should wear proper protective clothing and self contained breathing apparatus with full piece operated in positive pressure mode to prevent contact with skin and eyes.

Extinguishing Media:

Use water spray, dry chemical powder, or appropriate foam. Flash Point: N/A

NFPA Rating:

Health: 1; Flammability: 0; Instability: 0

6. Accidental Release Measures

Procedure(s) of Personal Precaution(s):

Wear protective gear.

Methods for Cleaning up:

Absorb with sand, earth or vermiculite. Carefully sweep up and containerize for proper disposal.

7. Handling and Storage

Use care when handling. Wash thoroughly after handling.

Store capped at Room temperature.

Keep away from incompatible materials.

8. Exposure Controls / Personal Protection

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

9. Physical and Chemical Properties

Physical State:	Liquid
Appearance:	Blue
Odor:	Acetic Acid
pH:	N/A
Vapor Pressure:	N/A
Vapor Density:	N/A
Evaporation Rate:	N/A
Viscosity:	N/A
Boiling Point:	N/A
Freezing/Melting Point:	N/A
Decomposition Temperature:	N/A
Solubility: Soluble. Specific Gravity/Density:	N/A

10. Stability and Reactivity Data

Chemical Stability:

Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.

Conditions to Avoid:

Heat, freezing.

Incompatibilities with Other Materials:

Chromic Acid, ethylene glycol, perchloric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, most metals (except aluminum), carbonates, hydroxides, oxides, and phosphates.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

RTECS#:**LD50/LC50:**

CAS# 64-19-7:

Oral rat LD50: 3310 mg/kg.

Skin: rabbit LD50: 1.06 g/kg

Inhalation mouse LC50: 5620 ppm/1-hr; investigated as a mutagen, reproductive effector.

Carcinogenicity:

CAS# 64-19-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 28631-66-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

LD50/LC50: CAS# 28631-66-5 not available

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Neurotoxicity: Not data available.

Mutagenicity: No data available.

12. Ecological Information

Ecotoxicity:

CAS# 64-19-7.

This material is expected to be slightly toxic to aquatic life. The LC50/96- hour values for fish are between 10 and 100 mg/l.

Environmental:

When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.

Physical: No information available.

Other: No information available.

13. Disposal Considerations

Appropriate method of disposal of substance or preparation:

Handled as hazardous waste and sent to an RCRA approved incinerator or disposed in an RCRA approved wasted facility.

14. Transport Information

DOT

Non-Regulated

15. Regulatory Information

Risk Phrases:

R22 Harmful by inhalation, in contact with skin and if swallowed
R36/38 Irritating to eyes and skin

Safety Phrases:

S20/21 When using do not eat, drink or smoke
S2 Keep out of the reach of children.
S 7 Keep container tightly closed.
S 9 Keep container in a well-ventilated place

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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VB-3034-8 1% Acetic Acid Solution MSDS**1. Identification of the Substance/Mixture and Company****Identification of the substance or mixture**

Product Name Acetic Acid Solution
Product number VB-3034-8
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 29850
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Composition/information on ingredients**Composition:**

Composition	CAS #	Weight %
Glacial Acetic acid	64-19-7	1
Water	7732-18-5	99

Toxicological Data on Ingredients:

Acetic acid: ORAL (LD50): Acute: 3310 mg/kg [Rat]. 4960 mg/kg [Mouse]. 3530 mg/kg [Rat].

3. Hazards Identification**Potential Acute Health Effects:**

Hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation (lung sensitizer). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs.

Potential Chronic Health Effects:

Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

4. First Aid Measures**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get

medical attention immediately.

Serious Ingestion: Not available.

5. Fire Fighting Measures

Flammability of the Product:	N/A
Auto-Ignition Temperature:	N/A
Flash Points:	N/A
Flammable Limits:	N/A
Products of Combustion:	N/A

Fire Hazards in Presence of Various Substances: N/A

Explosion Hazards in Presence of Various Substances:

Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: N/A

Special Remarks on Fire Hazards: N/A

Special Remarks on Explosion Hazards:

Acetic acid vapors may form explosive mixtures with air. Reactions between acetic acid and the following materials are potentially explosive: 5-azidotetrazole, bromine pentafluoride, chromium trioxide, hydrogen peroxide, potassium permanganate, sodium peroxide, and phosphorus trichloride. Dilute acetic acid and dilute hydrogen can undergo an exothermic reaction if heated, forming peracetic acid which is explosive at 110 degrees C. Reaction between chlorine trifluoride and acetic acid is very violent, sometimes explosive. (Acetic acid)

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. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Poisonous liquid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Finish p. 3 cleaning by spreading water on the contaminated surface and allow to evacuate through 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.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. 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.
Do not store above 23°C (73.4°F).

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:

Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Acetic acid TWA: 10 STEL: 15 (ppm) [Australia] TWA: 25 STEL: 27 (mg/m³) [Australia] TWA: 10 STEL: 15 (ppm) from NIOSH TWA: 25 STEL: 37 (mg/m³) from NIOSH TWA: 10 STEL: 15 (ppm) [Canada] TWA: 26 STEL: 39 (mg/m³) [Canada] TWA: 25 STEL: 37 (mg/m³) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 25 (mg/m³) from OSHA (PEL) [United States]³ Consult local authorities for acceptable exposure limits.

9. Physical and Chemical Properties

Physical state and appearance:	Liquid.
Odor:	Vinegar-like. Sour
Taste:	Vinegar-like. Sour
Molecular Weight:	N/A
Color:	N/A
pH (1% soln/water):	5 [Acidic.]
Boiling Point:	The lowest known value is 100°C (212°F) (Water).
Melting Point:	May start to solidify at 16.6°C (61.9°F) , (Acetic acid)
Critical Temperature:	The lowest known value is 321.67°C, 611°F (Acetic acid)
Specific Gravity:	Weighted average: 1 (Water = 1)
Vapor Pressure:	The highest known value is 2.3 kPa (@ 20°C) (Water).
Vapor Density:	The highest known value is 2.07 (Air = 1) (Acetic acid).
Volatility:	N/A
Odor Threshold:	The highest known value is 0.48 ppm (Acetic acid)
Water/Oil Dist. Coeff.:	The product is more soluble in water.
Ionicity (in Water):	N/A
Dispersion Properties:	Partially dispersed in methanol, diethyl ether, n-octanol.
Solubility:	Easily soluble in water, methanol, acetone, n-octanol.

10. Stability and Reactivity Data

Stability: The product is stable.

Incompatibility with various substances:

Non-reactive with oxidizing agents, reducing agents, metals, acids, alkalis

Corrosivity:

Corrosive in presence of zinc. Slightly corrosive in presence of steel, of aluminum, of copper.
Non-corrosive in presence of glass, of stainless steel(304), of stainless steel(316).

Special Remarks on Reactivity:

Reacts violently with strong oxidizing agents, acetaldehyde, and acetic anhydride. Material can react with metals, strong bases, amines, carbonates, hydroxides, phosphates, many oxides, cyanides, sulfides, chromic acid, nitric acid, hydrogen peroxide, carbonates. ammonium nitrate, ammonium thiosulfate, chlorine trifluoride, chlorosulfonic acid, perchloric acid, permanganates, xylene, oleum, potassium hydroxide, sodium hydroxide, phosphorus isocyanate, ethylenediamine, ethylene imine. (Acetic acid).

Special Remarks on Corrosivity: N/A

Polymerization: Will not occur.

11. Toxicological Information

Routes of Entry:

Absorbed through skin. Eye contact.

Toxicity to Animals:

Acute oral toxicity (LD50): 331000 mg/kg (Rat) (Calculated value for the mixture).
 Acute dermal toxicity (LD50): 106000 mg/kg (Rabbit) (Calculated value for the mixture).

Chronic Effects on Humans:

MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Acetic acid].

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation (lung sensitizer). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs.

Special Remarks on Toxicity to Animals: N/A

Special Remarks on Chronic Effects on Humans:

May affect genetic material and may cause reproductive effects based on animal data.
 No human data found. (Acetic acid)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: causes skin irritation Eyes: causes eye irritation. Inhalation: causes respiratory tract irritation. Irritates mucous membranes. Ingestion: may cause gastrointestinal tract irritation

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 less toxic than the product itself.

Special Remarks of Biodegradation: N/A

13. Disposal Considerations**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: N/A

Special Provisions for Transport: N/A

15. Regulatory Information**Federal and State Regulations:**

New York release reporting list: Acetic acid Rhode Island RTK hazardous substances: Acetic acid
 Pennsylvania RTK: Acetic acid Florida: Acetic acid Minnesota: Acetic acid Massachusetts RTK: Acetic acid
 New Jersey: Acetic acid TSCA 8(b) inventory: Acetic acid; Water

Other Classifications:

DSCL (EEC):

R25- Toxic if swallowed. R36/38- Irritating to eyes and skin. S1/2- Keep locked up and out of the reach of children. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 2 Fire Hazard: 0 Reactivity: 0 Personal Protection: J

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

Health: 1 Flammability: 0 Reactivity: 0

Protective Equipment: Gloves. Lab coat. Splash goggles.

16. Other Information

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