



MATERIAL SAFETY DATA SHEET (MSDS)

Kit Name: VitroView™ Picro-Sirius Red Stain Kit
SKU #: VB-3017

Revision Date: 01-16-2017

Components:

VB-3017 -1	Weigert's Hematoxylin Solution A
VB-3017 -2	Weigert's Hematoxylin Solution B
VB-3017 -3	Picro-sirius Red Solution
VB-3017-4	Acidified Water

VB 3017-1 Weigert's Hematoxylin Solution A MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Weigert's Hematoxylin Solution A
Product number VB-3017-1
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:

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-3017-2 Weigert's Hematoxylin Solution B MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Weigert's Hematoxylin Solution B
Product number VB-3017-2
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

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
Ferric Chloride	NIOSH REL	STEL	1 ppm
	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

U.S. DEPARTMENT OF TRANSPORTATION
AIR TRANSPORTUON : Not Regulated
PROPER SHIPPING NAME:

HAZARD CLASS:
ID NUMBER:
PACKING GROUP:
LABEL STATEMENT:
ENVIRONMENTAL HAZARDS:

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-3017-3 Picro-sirius Red Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Picro-sirius Red Solution
Product number VB-3017-3
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 and Information on Ingredients

Composition:

Name	CAS #
Water	7732-18-5
Picric Acid	88-89-1
Sirius red	2610-10-8

3. Hazards Identification

Classified as a NON-Hazardous substance according to criteria of NOHSC.
Classified as a NON-Dangerous good according to the ADG Code for the Transport of Dangerous Goods by Road and Rail.

R Phrases None allocated.

S Phrases S1/2 – Keep locked up and out of reach of children.
S24/25 – Avoid contact with skin and eyes.

4. First Aid Measures

Eye Contact: Flush eyes with copious amounts of water for at least 15 minutes.
Seek medical attention.

Skin Contact: Remove contaminated clothing and wash affected area with soap and water thoroughly. If irritation develops, seek medical attention.

Inhalation: Remove patient to fresh air.
If breathing stops, apply artificial respiration and seek medical attention.

Ingestion: DO NOT induce vomiting.
Wash mouth out with copious amounts of water. Seek medical attention.

First aid facilities: Eye wash station, safety shower and First Aid kit.

Advice to Doctor: Treat symptomatically.

5. Fire fighting Measures

Suitable extinguishing media
Use media suitable for other material involved in the fire.

Hazards for combustion products
Toxic gases may evolve.

Special protective precautions and equipment for fire fighters
Wear SCBA (Self-Contained Breathing Apparatus) and full protective equipment.

Hazchem code None allocated.

6. Accidental Release Measures

Precautions for safe handling

Use only in an adequately ventilated area. Wear appropriate protective clothing or equipment to avoid any personal contact and practice good personal hygiene. Avoid repeated or prolonged exposure. Do not use metal equipment or containers. Keep containers closed when not in use and do not empty into drains.

Conditions of safe storage

Store in a cool, dry, well-ventilated area out of direct sunlight. Solutions of picric acid must not be allowed to accumulate and dry around cap threads. Prohibit sources of ignition in the products vicinity.

7. Handling and Storage

Precautions for safe handling

Use only in an adequately ventilated area. Wear appropriate protective clothing or equipment to avoid any personal contact and practice good personal hygiene. Avoid repeated or prolonged exposure. Do not use metal equipment or containers. Keep containers closed when not in use and do not empty into drains.

Conditions of safe storage

Store in a cool, dry, well-ventilated area out of direct sunlight. Solutions of picric acid must not be allowed to accumulate and dry around cap threads. Prohibit sources of ignition in the products vicinity.

8. Exposure Controls/Personal Protection

National exposure standards

Not available for this mixture.
Picric Acid: [TWA] 0.1mg/m³

Biological Limit Values

Not available for this product.

Engineering Controls

Ensure adequate ventilation.

Personal Protective Equipment

Safety glasses or goggles, chemical-resistant gloves and laboratory coat.

9. Physical and Chemical Properties

Appearance	Green/Black liquid
Odour	Slight odour
pH	Acidic
Vapour pressure	N/A
Vapour density	N/A
Boiling point	100°C Melting
Melting point	<0°C
Solubility	Water soluble
Specific gravity	Approx. 1.0
Information for flammable materials	Non-combustible liquid
Upper and lower flammable limits in air	N/A

10. Stability and Reactivity

Chemical stability	Stable under recommended conditions for use and storage.
Conditions to avoid	Incompatible materials, heat and direct sunlight.
Incompatible materials	Avoid oxidisers and alkalis.
Hazardous decomposition products	Toxic gases may evolve.
Hazardous reactions	Polymerisation not expected to occur.

11. Toxicology Information

Health effects:

Eye Contact:	May be irritating which can result in redness, lacrimation, blurred vision and stinging.
Skin Contact:	The material may cause irritation, redness and itching.
Inhalation:	May cause irritation to the mucous membranes and upper respiratory tract resulting in nausea, headaches, coughing and breathing difficulties.
Ingestion:	May cause irritation to the gastrointestinal tract, nausea, abdominal pain and vomiting.
Chronic Effects:	Chronic exposure with skin may cause a rash, burns or dermatitis. Can also cause corneal burns.
Toxicity Data:	Not available for this mixture.

Chemical Name	LD50 (mg/kg)	RTECS Code
Picric Acid	LD50 (Oral, Rat): 200mg/kg	

12. Ecological Information

Ecotoxicity:	N/A
Persistence and degradability:	N/A
Mobility:	N/A.
Environmental fate (exposure):	Do not contaminate drains and waterways.
Bioaccumulative potential:	Not expected to bio-accumulate.

13. Disposal Considerations

Disposal methods and containers

Dispose of in accordance with local authority guidelines.

Special precautions

Product must be contained and not disposed to sewerage systems, drains or waterways.

14. Transport Information

DOT Classification:	Not a DOT controlled material (United States).
Identification:	N/A
Special Provisions for Transport:	N/A

15. Regulatory Information

Poison Schedule:

Not Scheduled.

TWA (Time Weighted Average):

The average airborne concentration of a particular substance when calculated over a normal eight hour working day, for a five day week.

16. Other Information

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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-3017- 4 Acidified Water (MSDS)

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Acidified Water
Product number VB-3017-4
Product Description Kit Component

Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850
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2. Composition and Information on Ingredients

Composition:

Name	CAS #
Acetic acid (glacial)	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

Physical Hazard

H290-Corrosive to Metals: 1

Environmental Hazard

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.

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.

Warning! Causes skin irritation. Causes eye irritation.

Avoid contact with skin, eyes and clothing.

Wash thoroughly after handling. Do not breathe vapors; use with adequate ventilation. May be corrosive to metals. Keep only in original container.

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 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 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 Protection 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:	Clear Odor: vinegar-like.
pH:	2.78-2.98
Vapor Pressure:	N/A
Vapor Density:	1.05
Evaporation Rate:	N/A
Viscosity:	N/A
Boiling Point:	118° C
Solubility:	Infinitely soluble

10 Stability and Reactivity

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. Toxicology 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

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: N/A

Other: N/A

13. Disposal Considerations

Waste Disposal

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

14. Transport Information

DOT Non-Regulated

15. Regulatory Information

Federal and State Regulations:

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

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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