



MATERIAL SAFETY DATA SHEET (MSDS)

Kit Name: VitroView™ Verhoeff-Van Gieson Elastin Stain Kit

SKU #: VB-3019

Revision Date: 01-16-2017

Composition:

VB-3019 -1	Alcoholic Hematoxylin
VB-3019 -2	Ferric Chloride Solution
VB-3019 -3	Weigert's Iodine Solution
VB-3019-4	Sodium Thiosulfate Solution
VB-3019-5	Van Gieson's Solution

VB-3019-1 Alcoholic Hematoxylin MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Alcoholic Hematoxylin
Product number VB-3019-1
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:

Chemical Name	CAS#
Hematoxylin	517-28-2
Ethyl alcohol	64-17-5

3. Hazards Identification

Precaution:

Flammable liquid and moderately toxic. Flammable liquid, keep away from all ignition sources.
Target organs: Liver, Kidneys, Central Nervous System.

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

4. First Aid Measures

Eye Contact:

Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.

Skin Contact:

Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.

Ingestion:

Call Poison Control immediately. Aspiration hazard. Rinse mouth with cold water. Give victim 1-2 tbsp of activated charcoal mixed with 8 oz water.

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration.

5. Fire and Explosion Data

Class IB Flammable Liquid. When heated to decomposition, emits acrid fumes 3

Protective equipment and precautions for firefighters:

Use foam or dry chemical to extinguish fire. 20 Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact. Material is sensitive to static discharge

6. Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

7. Handling and Storage

Handling:

Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.

Storage:

Store in Flammable Area [Red Storage] with other flammable materials and away from any strong oxidizers. Store in a dedicated flammables cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials

8. Exposure Controls/Personal Protection

Use ventilation to keep airborne concentrations below exposure limits.
Have approved eyewash facility, safety shower, and fire extinguishers readily available.
Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons.
Wash hands thoroughly after handling material and before eating or drinking.
Use NIOSH-approved respirator with an acid/organic cartridge.

Exposure guidelines: Ethyl Alcohol: OSHA PEL: 1900 mg/m³ and ACGIH TLV: 1000 ppm, STEL: N/A.
Hematoxylin: OSHA PEL: N/A; ACGIH TLV: N/A, STEL: N/A.

9. Physical and Chemical Properties

Physical state and appearance	Clear, slightly colored liquid.
Odor	Alcohol odor
Molecular Weight	N/A
pH (1% soln/water)	N/A
Boiling Point	N/A
Melting Point	N/A
Evaporation rate	N/A . (Butyl acetate = 1).
Vapor Pressure (20°C)	N/A
Solubility	Completely soluble in water.
Flash Point	17°C (63°F) CC.
UEL	3.3%.
LEL	19 %.

N/A = Not available or applicable

10. Stability and Reactivity Data

Avoid heat and ignition sources.

Stability:

Stable under normal conditions of use.

Incompatibility:

Oxidizers, nitric acid, sulfuric acid, aldehydes, halogens, peroxides, acid anhydrides, ammonia, alkali metals

Shelf life: Indefinite if stored properly.

11. Toxicological Information

Acute Symptoms/Signs of exposure:

Eyes: Stinging pain, watering of eyes, inflammation of eyelids and conjunctivitis.

Skin: Insensitivity to pain, feel of coolness or cold, skin looks white and feels hard and cold.

Ingestion: Breath has sweet, organic odor, metal confusion, drowsiness, nausea, vomiting and headache.

Inhalation: Rapid irregular breathing, headache, fatigue, mental confusion, nausea and vomiting,

giddiness and poor judgment, convulsions and death.

Chronic Effects:

Repeated/prolonged skin contact may cause dryness or rashes.

Sensitization: none expected

Ethyl Alcohol:

LD50 [oral, rat]; 7060 mg/kg; LC50 [rat]; 20,000 mg/l (10 hours); LD50 Dermal [rabbit]; 20 mg/24H
MOD Hematoxylin: LD50 [oral, rat]; N/A; LC50 [rat];N/A; LD50 Dermal [rabbit]; N/A

Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

12. Ecological Information

Ecotoxicity (aquatic and terrestrial): Ecological impact has not been determined.

13. Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

14. Transport Information

DOT Shipping Name: Ethanol Solutions.

Canada TDG: Ethanol solutions.

DOT Hazard Class: 3, pg II.

Hazard Class: 3, pg II .

Identification Number: UN1170.

UN Number: UN1170.

15. Other Regulatory Information

EINECS: Not Listed.

WHMIS Canada: Not WHMIS controlled.

TSCA: All components are listed or are exempt.

California Proposition 65: Not listed.

The 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

Copyright © 2017 VitroVivo Biotech, LLC. All rights reserved. No part of these pages may be used for any purpose other than personal use. Therefore, reproduction, modification, storage in a retrieval system or retransmission, in any form or by any means, for reasons other than personal use, is strictly prohibited without prior written permission.

VB 3019-2 Ferric Chloride Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Ferric Chloride Solution, 10%
Product number VB-3019-2
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:

Chemical Name	CAS#
Ferric chloride	7705-08-0
Water	7732-18-5

Toxicological Data on Ingredients:

Ferric chloride: ORAL (LD50): Acute: 900 mg/kg [Rat]. 1278 mg/kg [Mouse].

3. Hazards identification

Potential Acute Health Effects:

Extremely hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Very hazardous in case of skin contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Extremely hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Very hazardous in case of skin contact (corrosive). Non-sensitizer for skin. Non-permeator by skin. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

4. First Aid Measures

Eyes Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention..

Skin

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands: Gently **and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean** folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Inhalation:

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

5. Fire fighting Measures

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

6. Accidental release measures**Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate

Large Spill:

Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. 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 container dry. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:

May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package. Corrosive materials should be stored in a separate safety storage cabinet or room.

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. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

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

Exposure Limits:

Ferric chloride TWA: 1 CEIL: 2 (mg/m³) Consult local authorities for acceptable exposure limits

9. Physical and Chemical Properties
--

Physical State:	liquid
Color:	Yellowish-brown. (Dark.)
Odor:	Not available.
Taste:	Not available.
pH (1% soln/water):	Acidic.
Vapor Pressure:	The highest known value is 17.535 mm of Hg (@ 20°C) (Water).
Vapor Density:	The highest known value is 0.62 (Air = 1) (Water)
Boiling Point:	The lowest known value is 100°C (212°F) (Water).
Melting Point:	Not available
Solubility:	Easily soluble in cold water, hot water.
Specific Gravity:	1.394 (Water = 1)

10. Stability and Reactivity

Stability:	The product is stable.
Instability Temperature:	N/A
Conditions of Instability:	N/A
Incompatibility with various substances:	N/A
Corrosivity:	Highly corrosive in presence of copper. Non-corrosive in presence of glass.
Special Remarks on Reactivity:	N/A
Special Remarks on Corrosivity:	N/A
Polymerization:	No

11. Toxicology Information

Routes of Entry:	Eye contact. Inhalation. Ingestion.
Toxicity to Animals:	Acute oral toxicity (LD50): 9000 mg/kg (Rat) Calculated value for the mixture.
Chronic Effects on Humans:	The substance is toxic to lungs, mucous membranes.
Other Toxic Effects on Humans:	Extremely hazardous in case of skin contact (irritant), of ingestion, of inhalation. Very hazardous in case of skin contact (corrosive).
Special Remarks on Toxicity to Animals:	N/A
Special Remarks on Chronic Effects on Humans:	N/A

Special Remarks on other Toxic Effects on Humans: N/A.

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 product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: N/A

13. Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations

14. Transport Information

DOT Classification: CLASS 8: Corrosive liquid

Identification: Ferric chloride, Solution (Ferric chloride) : UN2582 PG: III

Special Provisions for Transport: N/A

15. Regulatory Information

US Federal and State:
Pennsylvania RTK: Ferric chloride Massachusetts RTK: Ferric chloride TSCA 8(b) inventory: Ferric chloride; Water CERCLA: Hazardous substances.: Ferric chloride;

Other Classifications:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

Other Classifications:

HMIS (U.S.A.):

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

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

Health: 3 **Flammability:** 0 **Reactivity:** 0 **Specific hazard:**

Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

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

Copyright © 2017 VitroVivo Biotech, LLC. All rights reserved. No part of these pages may be used for any purpose other than personal use. Therefore, reproduction, modification, storage in a retrieval system or retransmission, in any form or by any means, for reasons other than personal use, is strictly prohibited without prior written permission.

VB 3019-3 Weigert's Iodine Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Weigert's Iodine Solution
Product number VB-3019-3
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:

Chemical Name	CAS#
Iodine	7553-56-2
Potassium Iodide	7681-11-0
Water	7732-18-5

3. Hazards Identification

Classification:

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

Specific target organ toxicity - (repeated exposure) Category 1
Target Organs - Thyroid.

Signal Word

Danger

Hazard Statements

Causes damage to organs through prolonged or repeated exposure

Precautionary Statements

Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Response

Get medical attention/advice if you feel unwell

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

Unknown Acute Toxicity

4. First Aid Measures

Eye Contact:

Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.

Skin Contact:

Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration.

Ingestion:

Dilute immediately with water or milk. Induce vomiting. Call a physician.

Notes to Physician:

Treat symptomatically

5. Fire and Explosion Data

Suitable Extinguishing Media

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

Unsuitable Extinguishing Media

N/A

Flash Point

N/A

Method -

N/A

Autoignition Temperature

N/A

Explosion Limits**Upper**

N/A

Lower

N/A

Sensitivity to Mechanical Impact

N/A

Sensitivity to Static Discharge

N/A

Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products

Hydrogen iodide

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.

NFPA

Health
2

flammability
0

Instability
0

Physical hazard
N/A

6. Accidental Release Measures

Personal Precautions:

Use personal protective equipment. Ensure adequate ventilation.

Environmental Precautions:

Should not be released into the environment.

Methods for Containment and Clean Up : Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and Storage

Handling

Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.

Storage

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

8. Exposure Controls/Personal Protection

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location

Personal Protective Equipment**Eye/face Protection**

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 and body protection

Long sleeved clothing.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties
--

Physical state and appearance	Dark brown liquid
Odor	pungent
pH	N/A
Boiling Point / Range	N/A °C / °F @ 760 mmHg
Flash Point	N/A
Evaporation Rate	N/A
Flammability or explosive limits	
Upper	N/A
Lower	N/A
Melting Point / Range	0 °C / 32 °F
Vapor Pressure	14 mmHg
Vapor Density	0.7
Solubility	miscible
Specific Gravity	1.02
Partition coefficient; n-octanol/water	N/A
Autoignition Temperature	N/A
Decomposition Temperature	N/A
Viscosity	N/A

(N/A = Not available or applicable)

10. Stability and Reactivity Data
--

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Excess heat.
Incompatible products:	
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Hydrogen iodide

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions None under normal processing.

Iodine reacts violently or explosively with acetylene; acetaldehyde; metal azides; metal hydrides; and metal carbides. Iodine forms explosive or shock-sensitive compounds when mixed with reducing agents (such as lithium, sodium, aluminum and their hydrides) and liquid ammonia. Iodine will ignite powdered metals (such as antimony, magnesium and zinc) in the presence of water. Iodine is not compatible with combustibles; strong bases (such as sodium hydroxide and potassium hydroxide); halogens (such as chlorine, bromine and chlorine trifluoride); and ethanol.

Hazardous decomposition products

Hydrogen iodide gas, iodine gas, and potassium oxides. May also produce irritating and toxic fumes when heated.

11. Toxicological Information

Acute Toxicity

Product Information

Oral LD50

No acute toxicity information is available for this product
Based on ATE data, the classification criteria are not met.
ATE > 2000 mg/kg.

Dermal LD50

Based on ATE data, the classification criteria are not met.
ATE > 2000 mg/kg.

Vapor LC50

Based on ATE data, the classification criteria are not met.
ATE > 20 mg/l..

Component information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Iodine	315mg/kg (Rat)	1425mg/kg (Rabbit)	4588mg/kg (Rat)

Mutagenic Effects

No information available

Reproductive Effects

No information available.

Developmental Effects

No information available.

Teratogenicity

No information available.

STOT - single exposure

None known

STOT - repeated exposure

Thyroid

Aspiration hazard

No information available

Symptoms / effects, both acute and delayed

No information available

Endocrine Disruptor Information

No information available

Other Adverse Effects

The toxicological properties have not been fully investigated

12. Ecological Information

Ecotoxicity

This product are hazardous for the environment.

Persistence and Degradability

Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation

No information available.

Mobility

Will likely be mobile in the environment due to its water solubility.

13. Disposal Considerations

Waste Disposal Methods

Dispose of contents in a safe manner to comply with local, state and federal regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of packaging in a safe manner to comply with local, state and federal regulations. Contact a licensed professional waste disposal service to dispose of this material.

14. Transport Information

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG/IMO</u>	Not regulated

15. Regulatory Information

Regulatory Information (Not meant to be all inclusive - selected regulation represented)

OSHA Status:

These items meet the OSHA Hazard Communication Standard (29 CFR 1910.1200) definition of a hazardous material.

TSCA Status:

All components of this solution are listed on the TSCA Inventory or are mixtures (hydrates) of items listed on the TSCA Inventory.

Sara Title III:

Section 302 Extremely Hazardous Substances:Not Applicable.

Section 311/312 Hazardous Categories:No

Section 313 Toxic Chemicals:Not Applicable.

California: None Reported.

Pennsylvania: None Reported.

CERCLA Reportable Quantity: None Reported.

RCRA Status: Not Applicable.

WHMIS: Not Applicable.

Other Classifications:

NFPA Ratings:

Health: 2 Flammability: 0 Reactivity: 0 Special Notice Key:None

HMIS Ratings:

Health: 2 Flammability: 0 Reactivity :0 Protective Equipment: Eyewear, Gloves)

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

Copyright © 2017 VitroVivo Biotech, LLC. All rights reserved. No part of these pages may be used for any purpose other than personal use. Therefore, reproduction, modification, storage in a retrieval system or retransmission, in any form or by any means, for reasons other than personal use, is strictly prohibited without prior written permission.

VB-3019-4 Sodium Thiosulfate Solution

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Sodium Thiosulfate Solution
Product number VB-3019-4
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

Composition:

Name	CAS #
Sodium Thiosulfate	10102-17-7
Water	7732-18-5

3. Hazards Identification

Emergency Overview

Appearance: colorless liquid.

Caution! May cause respiratory tract irritation. May cause skin irritation. May cause eye irritation. This is expected to be a low hazard for usual industrial handling.

Target Organs: None.

Potential Health Effects

Eye: May cause mild eye irritation.

Skin: May cause skin irritation.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation.

Inhalation: Low hazard for usual industrial handling. May cause respiratory tract irritation.

Chronic: No information found.

4. First Aid Measures

Eye Contact:

Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops.

Skin Contact:

Flush with plenty of water for at least 15 minutes. Call a physician if irritation develops.

Inhalation:

Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

Ingestion:

Dilute with water or milk. Do not induce vomiting. Call a physician if necessary.

5. Fire Fighting Data

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or

equivalent), and full protective gear.

Extinguishing Media:

For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits

Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

6. Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

7. Handling and Storage

Handling:

Avoid prolonged or repeated contact with skin. Avoid ingestion and inhalation. Use with adequate ventilation.

Storage:

Store in a cool, dry place. Store in a tightly closed container.

8. Exposure Controls / Personal Protection

Engineering Controls:

Use adequate ventilation to keep airborne concentrations low.

OSHA Vacated PELs:

Water: No OSHA Vacated PELs are listed for this chemical. Sodium thiosulfate, pentahydrate: No OSHA Vacated PELs are listed for this chemical.

Personal Protection:

Eye Protection: Safety glasses or goggles.

Respiratory Protection: Normal room ventilation is adequate.

Skin Protection: Chemical resistant gloves.

9. Physical and Chemical Properties

Appearance: Colorless liquid

pH: N/A

Odor: odorless

Boiling Point: 212° F

Freezing/Melting Point:	32 ° F
Decomposition Temperature:	N/A
Vapor Pressure:	14 mm Hg
Vapor Density:	N/A
Evaporation Rate:	>1 (ether=1)
Viscosity:	N/A
Solubility in Water:	Completely soluble in water.
Melting Point:	0°C
Specific Gravity / Density:	1.0-1.
Molecular Formula:	Mixture

10. Stability and Reactivity Data

Chemical Stability:	Stable under normal conditions of use and storage.
Conditions to Avoid:	Excess heat.
Incompatibilities with Other Materials:	Sodium thiosulfate violently reacts with sodium nitrite. It is also incompatible with strong oxidizers, acid
Hazardous Decomposition Products:	Hydrogen sulfide, sodium oxide
Hazardous Polymerization:	Has not been reported.

11. Toxicological Information

RTECS#:	
CAS# 7732-18-5:	ZC0110000
CAS# 10102-17-7:	WE6660000
LD50/LC50:	
CAS# 7732-18-5:	Orat: LD50 = >90 mL/kg;
Carcinogenicity:	
CAS# 7732-18-5:	Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 10102-17-7:	Not listed by ACGIH, IARC, NTP, or CA Prop 65.
Epidemiology:	N/A
Teratogenicity:	N/A
Reproductive Effects:	N/A
Mutagenicity:	N/A
Neurotoxicity:	N/A
Other Studies:	

12. Ecological Information

Ecotoxicological Information:	N/A
--------------------------------------	-----

13. Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series: None listed.

14. Transport Information

This product is not regulated.

15. Regulatory Information

US Federal Regulation

TSCA

CAS# 7732-18-5 is listed on the TSCA inventory.

CAS# 10102-17-7 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2))

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

State

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 10102-17-7 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

Safety Phrases:

S 24/25 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

Copyright © 2017 VitroVivo Biotech, LLC. All rights reserved. No part of these pages may be used for any purpose other than personal use. Therefore, reproduction, modification, storage in a retrieval system or retransmission, in any form or by any means, for reasons other than personal use, is strictly prohibited without prior written permission.

VB 3019-5 Van Gieson's Solution MSDS

2. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Van Gieson's Solution
Product number VB-3019-5
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

Composition: Mixture

Name	CAS#
Acid fuchsin	3244-88-0
Picric acid	88-89-1
Water	7732-18-5

3. Hazards Identification

Emergency Overview:

WARNING! May be harmful if swallowed. Handle with care. Avoid contact with skin, eyes, or clothing. If ingested, dilute with water and induce vomiting. Call a physician. Wash areas of contact with plenty of water for 15 minutes. For eyes, get medical attention.

Target Organs: eyes, skin, respiratory system, central nervous system, cardiovascular system.

Eye Contact: May cause irritation, redness, pain, and tearing.

Inhalation: May cause irritation of the respiratory tract. Serious exposures to Iodine are seldom encountered in industry due to the low volatility of the solid at room temperatures.

Skin Contact: May cause irritation. Will stain skin.

Ingestion: Large quantity may cause diarrhea, nausea, abdominal pain.

Chronic Effects/Carcinogenicity: Chronic ingestion of large amounts may result in thyroid disease.

IARC - No.

NTP- No.

OSHA - No.

Reproductive Information:

Reproductive effects cited in 'Registry of Toxic Effects of Chemical Substances' for Potassium Iodide.

Teratology (Birth Defect) Information:

Mutation data cited in 'Registry of Toxic Effects of Chemical Substances' for Potassium Iodide.

4. First Aid Measures

Eye Contact:

Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.

Skin Contact:

Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration.

Ingestion:

Dilute immediately with water or milk. Induce vomiting. Call a physician.

5. Fire and Explosion Data

Flash Point: Not Available.

Method Used: Not Available

LFL: Not Available.

UFL: Not Available.

Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

Fire & Explosion Hazards: Not considered to be a fire or explosion hazard.

Fire Fighting Instructions: Use normal procedures/instructions.

Fire Fighting Equipment:

Use protective clothing and breathing equipment appropriate for the surrounding fire.

6. Accidental Release Measures

Absorb with suitable material and dispose of in accordance with local regulations. Solution may be neutralized with Sodium Thiosulfate solutions until colorless, then flushed down the drain with excess water.

7. Handling and Storage

As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Safety Storage Code: General

8. Exposure Controls/Personal Protection

Engineering Controls:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limit.

Respiratory Protection:

Normal room ventilation is adequate.

Skin Protection: Chemical resistant gloves.

Eye Protection: Safety glasses or goggles

9. Physical and Chemical Properties

Physical state and appearance	Dark brown liquid
Odor	characteristic Iodine odor
pH	N/A
Boiling Point	N/A
Melting Point	N/A
Vapor Pressure	N/A
Solubility in Water	Infinite
Specific Gravity	Approximately 1.1
Vapor Pressure	N/A

N/A = Not available or applicable

10. Stability and Reactivity Data

Chemical Stability: Stable under normal conditions of use and storage.

Incompatibility:

Powdered Aluminum, Active metals (Lithium, Potassium, Sodium), Ammonia, Acetylene, Acetaldehyde, strong Oxidizers.

Hazardous Decomposition Products:

When heated to decomposition, emits irritating smoke and fumes including Iodine vapors and Iodide.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

LD50, Oral, Rat: (Iodine) 14 gm/kg, details of toxic effects not reported other than lethal dose value .

12. Ecological Information

Ecotoxicological Information:

There is insufficient information available to evaluate the long -term effects of Iodine on aquatic life, birds, plants or terrestrial animals

13. Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

14. Transport Information

This product is not regulated

15. Other Regulatory Information

OSHA Status:

These items meet the OSHA Hazard Communication Standard (29 CFR 1910.1200) definition of a hazardous material.

TSCA Status:

All components of this solution are listed on the TSCA Inventory or are mixtures (hydrates) of items listed on the TSCA Inventory.

Sara Title III:

Section 302 Extremely Hazardous Substances:Not Applicable.

Section 311/312 Hazardous Categories:No

Section 313 Toxic Chemicals:Not Applicable.

California: None Reported.

Pennsylvania: None Reported.

CERCLA Reportable Quantity: None Reported.

WHMIS: Not Applicable

Other Classifications:

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 0 Special Notice Key:None

HMIS Ratings: Health: 2 Flammability: 0 Reactivity: 0

Protective Equipment: B (Protective Eyewear, Gloves)

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

Copyright © 2017 VitroVivo Biotech, LLC. All rights reserved. No part of these pages may be used for any purpose other than personal use. Therefore, reproduction, modification, storage in a retrieval system or retransmission, in any form or by any means, for reasons other than personal use, is strictly prohibited without prior written permission.