MATERAL SAFETY DATA SHEET (MSDS)

Kit Name: VitroView™ Sudan Black B Stain Kit
SKU #: VB 3012

Revision Date: 01-16-2017

Components:

VB-3012-1	Pre-Stain Solution
VB-3012-2	Sudan Black B Solution
VB-3012-3	Differentiation Solution
VB-3012-4	Nuclear Fast Red Solution

VB-3012-1 Pre-Stain Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Pre-Stain Solution
Product Number VB-3012 -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

Name	CAS #
Propylene glycol	57-55-6

3. Hazards identification

Potential Acute Health Effects: Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of inhalation.
Potential Chronic Health Effects: Slightly hazardous in case of skin contact (sensitizer). The substance may be toxic to central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

4. First Aid Measures

Eye 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. 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: N/A
Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion: N/A

5. Fire fighting Measures

Flammability of the Product: May be combustible at high temperature.
Auto-Ignition Temperature: 371°C (699.8°F)
Flash Points: CLOSED CUP: 99°C (210.2°F). OPEN CUP: 107°C (224.6°F) (Cleveland).
Flammable Limits: LOWER: 2.6% UPPER: 12.5%
Products of Combustion: These products are carbon oxides (CO, CO2).
Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of heat.
Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: N/A
Risks of explosion of the product in presence of static discharge: N/A
Fire Fighting Media and Instructions:
Small Fire: Use DRY chemical powder.
Large Fire: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards:
When heated to decomposition it emits acrid smoke and irritating fumes.
Special Remarks on Explosion Hazards: N/A

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: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish 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 away from heat. Keep away from sources of ignition. Empty containers pose a fire risk; evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. 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. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

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

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

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: TWA: 10 (mg/m^3) from AIHA Consult local authorities for acceptable exposure limits.

9. Physical and Chemical Properties

Physical state	Liquid
Color	Colorless. Clear
Odor	Practically Odorless.
pH(1% soln/water)	N/A
Boiling point	188°C (370.4°F)
Melting Point	-59°C (-74.2°F)
Specific Gravity	1.036 (Water = 1)
Vapor pressure	0.08 mmHg at 20°C, 0.129 mmHg at 25°C
Vapor density	2.62 (Air = 1)
Relative density	0.79
Viscosity	Kinematic (room temperature): <0.205 cm^2/S (20.5cst)
Volatility	N/A
Water/Oil Dist. Coeff	The product is more soluble in water; log(oil/water) = -0.9
Ionicity (in Water)	N/A
Solubility	Soluble in cold water, hot water, acetone

10. Stability and Reactivity

Stability: The product is stable.

Instability Temperature: N/A

Conditions of Instability: Incompatible materials, excess heat, exposure to moist air or water.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Hygroscopic; keep container tightly closed. Incompatible with chloroformates, strong acids (nitric acid, hydrofluloric acid), caustics, aliphatic amines, isocyanates, strong oxidizers, acid anhydrides, silver nitrate, reducing agents.

Special Remarks on Corrosivity: N/A

Polymerization: Will not occur.

11. Toxicology Information

Routes of Entry: Absorbed through skin and eye contact.

Toxicity to Animals: Acute oral toxicity (LD50): 18500 mg/kg [Rabbit]. Acute dermal toxicity (LD50): 20800 mg/kg [Rabbit].

Chronic Effects on Humans: May cause damage to the following organs: central nervous system (CNS).
Other Toxic Effects on Humans: Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of inhalation.
Special Remarks on Toxicity to Animals: N/A
Special Remarks on Chronic Effects on Humans: May affect genetic material (mutagenic). May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data.
Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: May cause mild skin irritation. It may be absorbed through the skin and cause systemic effects similar to those of ingestion.
Eyes: May cause mild eye irritation with some immediate, transitory stinging, lacrimation, blepharospasm, and mild transient conjunctival hyperemia. There is no residual discomfort or injury once it is washed away.
Inhalation: May cause respiratory tract irritation.
Ingestion: It may cause gastrointestinal tract irritation. It may affect behavior/central nervous (CNS depression, general anesthetic, convulsions, seizures, somnolence, stupor, muscle contraction spasticity, coma), brain (changes in surface EEG), metabolism, blood (intravascular hemolysis, white blood cells - decreased neutrophil function), respiration (respiratory stimulation, chronic pulmonary edema, cyanosis), cardiovascular system (hypotension, bradycardia, arrhythmias, cardiac arrest), endocrine system (hypoglycemia), urinary system (kidneys), and liver.
Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause allergic contact dermatitis. Ingestion: Prolonged or repeated ingestion may cause hyperglycemia and may affect behavior/CNS (symptoms similar to that of acute ingestion).
Inhalation: Prolonged or repeated inhalation may affect behavior/CNS (with symptoms similar to ingestion), and spleen.

12. Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): >5000 mg/l 24 hours [Goldfish]. >10000 mg/l 48 hours [guppy]. >10000 mg/l 48 hours [water flea].
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 on the Products of Biodegradation: N/A

13. Disposal Considerations

Waste treatment methods: Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging: Dispose of as unused product

14. Transport Information

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

15. Regulatory Information

Federal and State Regulations: Pennsylvania RTK: Propylene glycol Minnesota: Propylene glycol TSCA 8(b) inventory: Propylene glycol.
Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
Other Classifications:
DSCL (EEC): R21/22- Harmful in contact with skin and if swallowed. S24/25- Avoid contact with skin and eyes.
HMIS (U.S.A.): Health Hazard: 2 Fire Hazard: 1 Reactivity: 0 Personal Protection: h
National Fire Protection Association (U.S.A.):
Health: 0 Flammability: 1 Reactivity: 0 Specific hazard: 0
Protective Equipment: Gloves, Lab coat, Vapor respirator, Be sure to use an approved/certified respirator or equivalent, Splash goggles.

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

VB 3012-2 Sudan Black B Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Sudan Black B Solution
Product number VB-3012-2
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#
Sudan Black B	4197-25-5
Propylene glycol	57-55-6

3. Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly in case of skin contact (irritant).

Potential Chronic Health Effects:
Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available.

Terattogenic Effects: N/A

Developmental Toxicity: N/A

The substance is toxic to mucous membranes.
Repeated or prolonged exposure to the substance can produce target organs damage.

4. First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: N/A

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

Serious Inhalation: N/A

5. Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: N/A

Flash Points: N/A

Flammable Limits: N/A

Products of Combustion:
These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).

Fire Hazards: N/A

Explosion Hazards:
Risks of explosion of mechanical impact: N/A
Risks of explosion in static discharge: N/A

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: N/A

Special Remarks on Explosion Hazards: N/A

6. Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

7. Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agent

8. Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

9. Physical and Chemical Properties

Physical state and appearance	Solid. (Powdered solid.)
Odor	N/A
Molecular Weight	456.55 g/mole
Color	Dark.
pH (1% soln/water)	N/A
Boiling Point	N/A
Melting Point	Decomposes.
Critical Temperature	N/A .
Specific Gravity	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Volatility	N/A
Odor Threshold	N/A
Water/Oil Dist. Coeff	N/A .
Ionicity (in Water)	N/A
Dispersion Properties	N/A
Solubility	Insoluble in cold water

10. Stability and Reactivity Data

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

11. Toxicological Information

Routes of Entry	Eye contact. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 6300 mg/kg [Rat].
Chronic Effects on Humans	The substance is toxic to mucous membranes.
Other Toxic Effects on Humans	Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).
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 Biodegradation	The products of degradation are more toxic.
Special Remarks of Biodegradation	N/A

13. Disposal Considerations

Waste Disposal Method:

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

14. Transport Information

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

Identification N/A

Special Provisions for Transport N/A.

15. Other Regulatory Information

Federal and State Regulations TSCA 8(b) inventory: Sudan Black B
Other Regulations N/A
Other Classifications:
DSCL (EEC) R36- Irritating to eyes.
HMIS (U.S.)
Health Hazard: 2 Fire Hazard: 1 Reactivity: 0 Personal Protection: E

National Fire Protection Association (U.S.):
Health: 2 Flammability: 1 Reactivity: 0 Specific hazard:

Protective Equipment
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

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

VB-3012-3 Differentiation Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Differentiation Solution
Product number VB-3012 -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

Substance / Mixture : Mixture

Chemical Name	CAS-No.	Concentration (% w/w)
Propylene glycol	57-55-6	>= 20 - < 30
Acetic acid	64-19-7	>= 0.1 - < 1

3. Hazards Identification

GHS Classification Not a hazardous substance or mixture.
GHS Label element Not a hazardous substance or mixture.
Other hazards None known.

4. First Aid Measures

General advice Do not leave the victim unattended
If inhaled Move to fresh air.
If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.
In case of skin contact If on skin, rinse well with water.
In case of eye contact Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
If swallowed Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Rinse mouth with water
Most important symptoms and effects, both acute and delayed: None known
Notes to physician The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

5. Fire-fighting Measures

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment
Specific hazards during fire fighting N/A
Hazardous combustion products No hazardous combustion products are known
Further information Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for fire-fighters Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Refer to protective measures listed in sections 7 and 8.
Environmental precautions: Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Wipe up with absorbent material (e.g. cloth, fleece). Keep in suitable, closed containers for disposal. Use neutralizing agents

7. Handling and Storage

Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.
Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.
Specific end use(s): Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (form of exposure)	Control parameter Permissible concentration	Basis
Propylene glycol	57-55-6	TWA	10 mg/m3	US WEEL
Acetic acid	64-19-7	TWA	10 ppm	ACGIH
		STEL	15 ppm	ACGH
		TWA	10 ppm 25 mg/m^3	NIOSH REL
		ST	15 ppm 37 mg/m^3	NIOSH REL
		TWA	10 ppm 25 mg/m^3	OSHA-Z1
		TWA	10 ppm 25 mg/m^3	OSHA P0

Engineering measures: N/A
Personal protective equipment

Respiratory protection	No personal respiratory protective equipment normally required.
Hand protection:	Protective gloves
Eye protection	Safety glasses
Skin and body protection	Protective suit

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Appearance Form	liquid, clear, viscous Colour: colourless
Odour	No data available
Odour Threshold	N/A
pH	N/A
Melting point/freezing point	N/A
Melting point/range	-60 °C (-76 °F) - lit.
Boiling point and boiling range	103 °C (217 °F)
Flash point	does not flash
Evaporation rate	N/A
Flammability (solid, gas)	N/A
Upper explosion limit	12.5 %(V)
Lower explosion limit	2.6 %(V)
Vapour pressure	0.11 hPa (0.08 mmHg) at 20 °C (68 °F)
Vapour density	2.63 - (Air = 1.0)
Relative density	1.036 g/cm3 at 25 °C (77 °F)
Relative vapour density	2.63 - (Air = 1.0)
Water solubility	N/A
Partition coefficient: noctanol/water	N/A
Auto-ignition temperature	N/A
Decomposition temperature	N/A
Viscosity	N/A
Explosive properties	N/A
Oxidizing properties	N/A

10. Stability and Reactivity

Reactivity	N/A
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	N/A
Conditions to avoid	N/A
Incompatible materials	N/A
Hazardous decomposition products	N/A

11. Toxicology Information

Acute toxicity

Not classified based on available information.

Acute oral toxicity	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	Acute toxicity estimate: > 30000 ppm Exposure time: 4 h Test atmosphere: gas Method: Calculation method

Ingredients:

Propylene glycol:

Acute oral toxicity	LD50 (Rat): 20,000 mg/kg LD50 (Mouse): 20,300 mg/kg
Acute inhalation toxicity	Acute toxicity estimate: > 30 mg/l Method: Expert judgment
Acute dermal toxicity	LD50 (Rabbit): 20,800 mg/kg
Respiratory or Skin corrosion/irritation	
Skin sensitization	Not classified based on available information.
Respiratory sensitization	N/A .
Germ cell mutagenicity	N/A

Acetic acid:

Genotoxicity in vitro	Test Type: Ames test Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Result: negative Remarks: In vitro tests did not show mutagenic effects Method: OECD Test Guideline 473 Remarks: In vitro tests did not show mutagenic effects
Germ cell mutagenicity Assessment	Not mutagenic test in Ames

Carcinogenicity:

IARC

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

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP

Reproductive toxicity	Not classified based on available information.
STOT-single exposure	Not classified based on available information.

12. Ecological Information

Ecotoxicity

Toxicity

Aquatic toxicity	No further relevant information available.
Persistence and degradability	N/A
Behavior in environmental systems:	
Bioaccumulative potential	N/A
Mobility in soil	N/A

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	N/A
vPvB	N/A
Other adverse effects	N/A

13. Disposal Considerations

Waste treatment methods Recommendation:
Must not be disposed of together with house whole garbage. Do not allow product to reach sewage system.
Uncleaned packagings Recommendation:
Disposal must be made according to official regulations. Water, if necessary with cleansing agents.

14. Transport information

DOT (US)	Not dangerous goods
IMDG	N/A
IATA	N/A

15. Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components
Propane-1,2-diol CAS-No. 57-55-6 Revision Date 2007-03-01

New Jersey Right To Know Components
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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

VB-3012-4 Nuclear Fast Red Solution MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Nuclear Fast Red Solution
Product number VB-3012-4
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

Chemical Description: Mixture

Name	CAS #.
Aluminum Sufate Hydrate	7784-31-8
Nuclear Fast Red	6409-77-4
Sodium Azide	26628-22-8
Water	7732-18-5

May contain additional non-hazardous proprietary ingredients.
May contain additional active ingredients at concentrations

3. Hazards Identification

GHS CLASSIFICATION: Skin Irritation Category 2; Eye Irritation Category 1; Chronic Aquatic Toxicity Category 3

Hazard Phrases	
H318	Causes serious eye damage.
H315	Causes skin irritation
H411	Toxic to aquatic life with long lasting effects.

Precautionary Phrases	
P302+P352	IF ON SKIN: Wash with plenty of soap and water
P305+p351 338	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 medical advice/attention.
P273	Avoid release to the environment.

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 irritation persists.

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 irritation develops.

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. Get medical attention immediately.

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. Firefighting Measures

Flammability of the product:

Flash point: Not Available

Autoignition temperature: Not Available

NFPA Hazard classification:

Health: 2 Flammability: 0 Reactivity: 0 Other:

HMIS Hazard classification:

Health: 2 Flammability: 0 Reactivity: 0 Protection: B

Extinguish media: Use dry chemical, CO2, water spray (fog) or foam.

Not suitable: Do not use water jet.

Special fire fighting procedures:
Fire-fighters should wear appropriate protective equipment self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental Release Measures

Small spill and leak:
Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Do not allow product to enter drains.

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. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and Storage

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

Storage:
Store in accordance with local regulations. Store in a segregated and approved area. Store in a well ventilated area. Store at 2-8°C

8. Exposure Controls/Personal Protection

Engineering controls:
Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipme

Respiratory protection:
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Eye protection:
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: splash goggles

Skin protection:
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Work hygienic practices:
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 eye wash stations and safety showers are close to the workstation location.

Notes:
Avoid releasing large quantities into the environment.

9. Physical and Chemical Properties

Appearance:	Red liquid
Odor:	Unknown
Physical state:	Liquid.
pH as supplied:	N/A
Boiling point:	N/A
Melting point:	N/A
Freezing point:	N/A
Vapor pressure (mmHg):	N/A
Vapor density (Air = 1):	N/A
Evaporation rate:	N/A
Solubility in water:	Soluble in water
Molecular weight:	Mixture
Viscosity:	N/A

10. Stability and Reactivity

Stability:	Product is stable under normal conditions of use.
Condition to avoid (stability):	Excessive heat, static electricity, direct sunlight.
Incompatibility (Material to avoid):	Oxidizers, alkalis, antimony salts, arsenates, carbonates, and phosphates.
Hazardous decomposition:	Carbon oxides, Nitrogen oxides, oxides of silver.
Hazardous polymerization:	No hazardous polymerization.

11. Toxicological Information

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	Seriously irritating to the eye.
Respiratory or skin sensitization	N/A
Germ cell mutagenicity:	N/A

International Agency for Research on Cancer (IARC).
None of the components are listed.

National Toxicology Program (NTP).
Although not listed above, this stain is suspected of causing cancer.

Specific target organ toxicity

Single exposure (Globally Harmonized System)	N/A
Repeated exposure (Globally Harmonized System)	N/A

Aspiration hazard	N/A

Potential health effects

Inhalation:	May cause respiratory tract irritation.
Ingestion:	Toxic if swallowed.
Skin:	Causes skin irritation.
Eyes:	Causes eye irritation.

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

Routes if entry:	Skin/eye contact, inhalation, and ingestion.
Acute health hazard:	See above, potential health effects.

12. Ecological Information

Toxicity:	
Fish:	N/A
Crustacea:	N/A
Algae/Aquatic Plants:	N/A
Other Organisms:	N/A
Persistence and degradability	N/A
Bioaccumulative potential	N/A
Mobility in soil	N/A
PBT and vPvB assessment	N/A
Other adverse effects	N/A

13. Disposal Considerations

Waste disposal methord:
Unused product: dispose as a regulated hazardous waste. Spent product or spill clean upfollow all provincial, local, state, and federal regulations.

14. Transport Information

DOT (U.S.)

Proper shipping name::	Environmentally hazardous substance, (Liquid) N.O.S. (Silver Nitrate)
Hazard class:	9
ID number:	UN3082
Packing group:	III
Air transportation	(IATA)
Proper shipping name:	Environmentally hazardous substance, Liquid . N.O.S.(Silver Nitrate)
Environmental Hazards:	Yes

15. Regulatory Information

United States
HCS Classification: Aquatic toxicity:

U.S. Federal regulations
United States inventory (TSCA 8b):
TSCA 8(d) H and S data reporting:
TSCA (Toxic Substance Control Act): All components are listed on the TSCA Inventory.

States RTK:
California Prop. 65
This product does not contain any chemicals known to the State of California to cause birth defects or other reproductive harm: None

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