VitroVivo Biotech
Make Tissues, Cells, Genes and Molecules Visible

MATERAL SAFETY DATA SHEET (MSDS)

Kit Name: Iron Prussian Blue Stain Kit
SKU #: VB-3009

Revision Date: 01-16-2017

Components:

VB-3009-1	Potassium Ferrocyanide Solution
VB-3009-2	Hydrochloric Acid Solution
VB-3009-3	Nuclear Fast Red Solution

VB 3009-1 Potassium Ferrocyanide Solution (MSDS)

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Potassium Ferrocyanide Solution
Product number VB-3009-1
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

Compotion:

Name	CAS#	% by weight
Potassium Ferrocyanide	14459-95-1	<5
Water	7732-18-5	

3. Hazards Identification

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

Potential Chronic Health Effects:
The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage

4. First Aid Measures

Eye 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. Seek immediate medical advice.

Oral Exposure:
If Swallowing seek immediate medical advice.

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

5. Firefighting Measures

NFPA HEALTH 1 FLAMMABILITY 0 REACTIVITY 0

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
Auto ignition Temperature: N/A

Explosion Limits: N/A
Upper: N/A

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas.
For personal protection see section 8.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Do not flush with water. Keep in suitable, closed containers for disposal.

Reference to other sections
For disposal see section 13.

7. Handling and Storage

Precautions for safe handling
For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage. Do not store near acids.

Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

Exposure controls
Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

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

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good practices. Wash and dry hands.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as abackup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH

(US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Form:	liquid
Odor	N/A
pH	7.6-9.6
Boiling Point	100 ^{o} C
Melting point/freezing point	N/A
Initial point and boiling range	100 °C (212 °F) at 1,013 hPa (760 mmHg)
Flash point	N/A
Evaporation rate	N/A
Flammability (solid, gas)	N/A
Vapour pressure	2.3 kPa @ 20^{O} C
Vapour density	0.62 (Air=1)
Relative density	N/A
Water solubility	N/A
Partition coefficient:	N/A
Auto-ignition temperature	N/A
Decomposition temperature	N/A
Viscosity	N/A
Explosive properties	N/A
Other safety information	N/A

10. Stability and Reactivity

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.

Hazardous Decomposition Products:
Nitrogen oxides, Carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur.

Incompatibilities with other material: Oxidizing agents and acids.

11. Toxicology Information

Oral (LD50): Acute: 6400mg/kg [Rat] 5000 mg/kg [Mouse]

Route of exposure:
Multiple routes: May cause irritation. May be harmful by inhalation, ingestion, or skin absorption.

Chronic Effects on Humans:
The substance may cause damage to lungs and mucuos membranes through prolonged exposure.

Conditions aggravated by exposure:
The toxicological properties have not been thoroughly investigated.

IARC / ACGIH / NTP / OSHA:
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen.

Carcinogenic Effects: N/A **Mutagenic Effects:** N/A **Teratogenic Effects:** N/A
Developmental Toxicity: N/A

12. Ecological Information

Toxicity
Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 869 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates:
EC50 - Daphnia magna (Water flea) - 549 mg/l - 48 h

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

13. Disposal Considerations

Appropriate method of disposal of substance or preparation:
Handled as hazardous waste and sent to an RCRA approved incinerator or disposed in an RCRA approved wasted facility.

14. Transport Information

DOT (US) Non-Regulated
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s.

15. Regulatory Information

US Classification and label test

US Statements: Caution: Irritant to skin and eyes.
United States Regulatory Information SARA Listed: No

Risk Phrases:

R22	Harmful if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R48/20/22	Harmful: damage of serious damage to health by prolonged exposure through inhalation and if swallowed.

Safety Phrases:

S20/21	When using do not eat, drink or smoke
S2	Keep out of the reach of children
S7	Keep container tightly closed
S9	Keep container in a well-ventilated place
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S24/25	Avoid contact with skin and eyes
S36	Wear suitable protective clothing

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-3009-2 Hydrochloric Acid Solution (MSDS)

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Hydrochloric Acid ,
Product number VB-3009-2
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 and Information on Ingredients

Composition:

Name	CAS #
Hydrogen chloride	7647-01-0
Water	7732-18-5

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

3. Hazards Identification

Potential Acute Health Effects:

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

Slightly hazardous in case of skin contact (sensitizer).
Carcinogenic effects: Classified 3 (Not for human.) by IARC [Hydrogen chloride].
Mutagenic effects N/A.
Teratogenic Effects: N/A.
Development Toxicity: N/A.

The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, , teeth. Repeated or prolonged exposure to the substance can produce target organs damage. p. 2 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.

4. First Aid Measures

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

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while

removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention

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

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. Seek medical attention.

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: Not available.

5. Fire and Explosion Data

Flammability of the Product:	N/A
Auto-Ignition Temperature:	N/A.
Flash Points:	N/A
Flammable Limits:	N/A.
Products of Combustion:	N/A
Fire Hazards in Presence of Various Substances:	N/A
Explosion Hazards in Presence of. **Substances**:	Non-explosive in presence of open flames and sparks, of shocks.
Fire Fighting Media and Instructions:	N/A.

Special Remarks on Fire Hazards:
Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas. (Hydrochloric Acid)

Special Remarks on Explosion Hazards:
Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino p. 3 ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

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/ vapor/spray. Never add water to this product. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

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

8. Exposure Controls/Personal Protection

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

Personal Protection:
Face shield. 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:
Hydrogen chloride STEL: 7.5 (mg/m3) from ACGIH (TLV) [United States] STEL: 5 (ppm) from ACGIH (TLV) [United States] CEIL: 5 (ppm) from NIOSH CEIL: 7.5 (mg/m3) from NIOSH CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

9. Physical and Chemical Properties

Physical state and appearance:	Liquid.
Odor:	N/A.
Taste:	Acid.
Molecular Weight:	N/A
Color:	Clear Colorless.
pH (1% soln/water):	Acidic.
Boiling Point:	The lowest known value is 100°C (212°F) (Water).
Melting Point:	N/A
Critical Temperature:	N/A
Specific Gravity:	Weighted average: 1 (Water = 1)
Vapor Pressure:	The highest known value is 2.3 kPa (@ 20°C) (Water).
Vapor Density:	The highest known value is 0.62 (Air = 1) (Water).
Volatility:	N/A
Odor Threshold:	N/A
Water/Oil Dist. Coeff.:	N/A
Ionicity (in Water):	N/A
Dispersion Properties:	See solubility in water, diethyl ether.

Solubility: Easily soluble in cold water, hot water. Soluble in diethyl ether.

10. Stability and Reactivity Data

Stability:
Stable when stored in sealed container at normal temperatures and in a suitable location.

Instability Temperature: N/A

Conditions of Instability: Incompatible materials

Reactivity
Can react with alkalis, oxidising agents and other acids. Reaction with sulphides can produce hydrogen sulphide gas. Reaction with cyanides can produce hydrogen cyanide gas. Reaction with metals can produce hydrogen gas which can form explosive atmospheres. Will corrode metals, some plastics and rubber. Ensure any packaging used to contain the mixture is compatible.

Possibility of hazardous reactions
May react exothermically. May produce hydrogen cyanide or hydrogen sulphide. Reactions in a sealed container may result in pressure build up with possible rupture of the container.

Polymerization: Will not occur.

Conditions to avoid
Avoid direct sunlight and moisture. Avoid heat and freezing conditions. Avoid storage with oxidising agents. Avoid storage with incompatible materials. It is advisable to store the product within some form of containment to prevent spillages reaching drainage systems. Avoid storage in an unstable manner or in a situation that would result in exposure to the product. Do not allow the storage container to be left exposed to the atmosphere.

Incompatible materials

Materials To Avoid Amines. Perchloric acid Epichlorohydrin Isocyanates Some plastics, rubber and coatings. Avoid contamination with other chemicals that will affect the composition of the product. Inorganic hydrides. Alkali metals. Alkali earth metals. Metals. Strong oxidising substances. Strong alkalis Aldehydes. Aluminium. Fluorine Sulphides Ammonia. Ammonia compounds. Sulphuric acid. Cyanides

Hazardous decomposition products
None anticipated at normal temperatures. See section 5 for thermal decomposition products.

11. Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. Contains material which may cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, , teeth.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant). Hazardous in case of ingestion, of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive, permeator), of eye 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:

Acute Potential Health Effects: Skin: Mildly Corrosive. Causes skin irritation and possible burns. Eyes: Mildly Corrosive. Causes eye irritation possible burns. Inhalation: May cause irritation of the nose, throat, bronchi (upper respiratory tract), coughing, sneezing, hoarseness. May affect the lungs/respiration. May affect the liver. Ingestion: Causes irritation gastrointestinal tract with nausea, vomitting abdominal cramps, and diarrhea. May affect behavior, the cardiovascular system, respiration and urinary system (kidneys). Chronic Potential Health Effects: Prolonged or repeated inhalation or ingestion may affect liver, respiration(changes in pulmonary function, chronic bronchitis), teeth (yellowing of teethand erosion of tooth enamel), kidneys, and behavior. Prolonged or repeated skin contact may cause dermatitis.

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

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

14. Disposal Considerations

DOT Classification: Class 8: Corrosive material

Identification: : Hydrochloric Acid Solution UNNA: 1789 PG: III

Special Provisions for Transport: N/A

15. Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid; Water TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid 5% CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg);

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

Other Classifications:

DSCL (EEC):
R34- Causes burns. S24/25- Avoid contact with skin and eyes. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of [***] S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

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

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

Health: 2 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

VB-3009-3 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 3009-3
Product Description	Kit Component

Manufacturer/Supplier

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

2. Composition /Information on Ingredients

Chemical Description: 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

Handing :
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