VitroVivo Biotech
Make Tissues, Cells, Genes and Molecules Visible

MATERAL SAFETY DATA SHEET (MSDS)

Kit Name: VitroView™ Gallyas Silver Stain Kit
SKU #: VB-3037

Revision Date: 10-25-2025

Components:

VB-3037-1	0.25% potassium permanganate
VB-3037-2	2% oxalic acid
VB-3037-3	5% periodic acid
VB-3037-4	Silver iodide solution A
VB-3037-5	Silver iodide solution B
VB-3037-6	0.5% acetic acid
VB-3037-7	Developer solution A
VB-3037-8	Developer solution B
VB-3037-9	Developer solution C
VB-3037-10	Nuclear fast red Solution

VB-3037-1 0.25 Potassium Permanganate MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name 0.25% Potassium Permanganate
Product number VB-3037-1
Product Description Kit Component

Manufacturer/Supplier

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

2. Composition/information on ingredients

Composition:

Name	CAS #	Weight (%)
Potassium Permanganate	7722-64-7	0.25

3. Hazards Identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29

Oxidizing solids	Category2
Acute oral toxicity	Category 4
Skin Corrosion/Irritation	Category 1 C
Serious Eye Damage/Eye Irritation	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Brain	

4. First Aid Measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Ingestion	Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation \
Notes to Physician	Treat symptomatically

5. Fire Fighting Measures

Suitable Extinguishing Media	CO 2, dry chemical, dry sand, alcohol-resistant foam.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	Not applicable
Explosion Limits	
Upper	No data available
Lower	No data available
Oxidizing Properties	Oxidizer
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.). Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Heavy metal oxides. Potassium oxides.
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. Thermal decomposition can lead to release of irritating gases and vapors

NFPA

Health	Flammability	Instability	Physical hazards
3	0	2	OX

6. Accidental Release Measures

Personal Precautions Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal

7. Handling and Storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store near combustible materials. Incompatible Materials. Reducing Agent. Strong acids. Strong reducing agents. Combustible material

8. Exposure Controls, Personal Protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Potassium permanganate	TWA: 0.02 mg/m3 TWA: 0.1 mg/m3	(Vacated) Ceiling: 5 mg/m3 Ceiling: 5 mg/m3	IDLH: 500 mg/m3 TWA: 1 mg/m3 STEL: 3 mg/m3	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

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

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 Wear appropriate protective gloves and clothing to prevent skin exposure. 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

9. Physical and Chemical Properties

Physical State	Solid Powder
Appearance	Dark brown
Odor	Odorless
Odor Threshold	No information available
pH	8 (16 g/l @ 20°C)
Melting Point/Range	240 °C / 464 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	2.700 g/cm3
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	240 °C
Viscosity	Not applicable
Molecular Formula	K Mn O4
Molecular Weight	158.04

10. Stability and Reactivity

Reactive Hazard	Yes
Stability	Stable under normal conditions. Oxidizer: Contact with combustible/organic material may cause fire.
Conditions to Avoid	Incompatible products. Excess heat. Combustible material.
Incompatible Materials	Reducing Agent, Strong acids, Strong reducing agents, Combustible material
Hazardous Decomposition Products	Heavy metal oxides, Potassium oxides
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing

11. Toxicological Information

Acute Toxicity
Product Information

Oral LD50	Category 4.		
Component Information			
Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Potassium permanganate	LD50 = 750 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	Not listed
Toxicologically Synergistic Products	No information available		

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Causes severe irritation and or burns
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.
Mutagenic Effects	No information available
Reproductive Effects	Possible risk of harm to the unborn child.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system Central nervous system (CNS)
STOT - repeated exposure	Brain
Aspiration hazard	No information available
Symptoms / effects,both acute and delayed.	Product is a corrosive material. Use of gastric lavage or emesis is Contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Endocrine Disruptor Information	No information available
Other Adverse Effects	The toxicological properties have not been fully investigated.

12. Ecological Information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Persistence and Degradability	May persist based on information available.
Bioaccumulation/ Accumulation	No information available.
Mobility	Will likely be mobile in the environment due to its water solubility.

Component	**log Pow**
Potassium permanganate	-1.73 13

13. Disposal Information

Waste Disposal Methods	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

14. Transport Information

DOT

UN-No	UN1490
Proper Shipping Name	POTASSIUM PERMANGANATE
Hazard Class	5.1
Packing Group	II

TDG

UN-No	UN1490
Proper Shipping Name	POTASSIUM PERMANGANATE
Hazard Class	5.1
Packing Group	II

IATA

UN-No	UN1490
Proper Shipping Name	POTASSIUM PERMANGANATE
Hazard Class	5.1

Packing Group	II

IMDG/IMO

UN-No	UN1490 Proper
Shipping Name	POTASSIUM PERMANGANATE
Hazard Class	5.1
Packing Group	II

15. Regulatory Information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

Potassium permanganate	CAS-No. 7722-64-7	Revision Date 2007-03-01

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components

Potassium permanganate	CAS-No. 7722-64-7	Revision Date 2007-03-01

Pennsylvania Right To Know Components

Potassium permanganate	CAS-No. 7722-64-7	Revision Date 2007-03-01

California Prop. 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name	**2%** Oxalic Acid
Product number	VB-3037-2
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	CAS #	Weight (%)
Oxalic Acid	144-62-7	2

3. Hazards Identification

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Acute toxicity, Dermal (Category 4), H312
Serious eye damage (Category 1), H318
Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS Label elements, including precautionary statements
Hazard statement(s)

H302 + H312	Harmful if swallowed or in contact with skin.
H318	Causes serious eye damage.
H402	Harmful to aquatic life.

Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse. P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

4. First Aid Measures

Description of first-aid measures
General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air

In case of skin contact
In case of skin contact:
Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed
No data available

5. Fire Fighting Measures

Extinguishing media
Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture
Carbon oxides
Combustible
Development of hazardous combustion gases or vapours possible in the event of fire.

Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

Reference to other sections
For disposal see section 13.

7. Handling and Storage

Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry.
Moisture sensitive.

Storage class

Storage class (TRGS 510): 11: Combustible Solids

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

Ingredients with workplace control parameter

Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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). Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Body Protection

protective clothing

Respiratory protection

required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Form:	crystalline Color: white
Odor	odorless
Odor Threshold	Not applicable
pH	1.3 at 9 g/l
Melting point/freezing point	Melting point/range: 189.5 °C (373.1 °F) - dec.

Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Density	1.9 g/cm3 at 20 °C (68 °)
Relative density	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition	No data available temperature
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	none

Other safety information
No data available

10. Stability and Reactivity Data

Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions
Risk of explosion with:
chlorates
sodium hypochlorite
Strong oxidizing agents
silver
salts of oxyhalogenic acids
Exothermic reaction with:
bases
Ammonia
Mercury

Conditions to avoid
Avoid moisture.
no information available

Incompatible materials
No data available

Hazardous decomposition products
In the event of fire: see section 5

11. Toxicological Information

Information on toxicological effects
Acute toxicity
LD50 Oral - Rat - female - 375 mg/kg
Remarks: (ECHA)
Inhalation: No data available
LD50 Dermal - Rabbit - 20,000 mg/kg
Remarks: (Regulation (EC) No 1272/2008, Annex VI)
(ECHA)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation (OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit Result: Risk of serious damage to eyes. - 24 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative (OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

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.
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.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
Repeated dose toxicity - Rat - male and female - Oral - 90 Days - NOAEL (No observed adverse effect level) - 63 mg/kg
RTECS: RO2450000 Kidney injury may occur., Contact with eyes can cause:, Damage to the eyes. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

12. Ecological Information

Toxicity

Toxicity to fish	static test LC50 - Leuciscus idus melanotus - 160 mg/l - 48 h Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 162.2 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 19.83 - 21.35 mg/l - 72 h (OECD Test Guideline 201)

Persistence and degradability

Biodegradability	aerobic - Exposure time 20 d Result: 89 % - Readily biodegradable. Remarks: (ECHA)

Bioaccumulative potential
No data available

Mobility in soil
No data available

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Endocrine disrupting properties
No data available

Other adverse effects
No data available

13. Disposal Considerations

Waste treatment methods
Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions

14. Transport Information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

15. Regulatory Information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

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
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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

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-3037-3 5% Periodic Acid MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name 5% Periodic Acid
Product number VB-3037-3
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

Composition:

Name	CAS#	% by weight
Periodic Acid	10450-60-9	< 5
Water	7732-18-5	

3. Hazards Identification

Caution: May cause skin, eye, and respiratory tract irritation. The toxicological properties have not been fully investigated.
Potential Health Effects: The toxicology of this compound have not been completely examined. It is presumed that the toxicity of this item is similar to other weak oxidizers. Irritating to skin, eyes and mucous membranes. Ingestion will cause gastrointestinal distress.

Acute Effects

Principle Routes of Exposure:
Eyes: May cause irritation.
Skin: May cause irritation.
Inhalation: May be harmful and cause irritation of respiratory tract.
Ingestion: May be harmful and cause irritation.

Chronic Effects None known.

4. First Aid Measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.
Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician
Skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
Inhalation: move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Notes to Physician: Treat symptomatically.

5. Firefighting Measures

Unsuitable Extinguishing Media: N/A
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable Extinguishing Media: N/A
Specific Hazards: The decomposition can lead to release of irritating gases and vapors.
Precautions for Firefighters: Wear self contained breathing apparatus for fire fighting if necessary.
Further information:
NFPA Health: 1 Flammability: 0 Instability: 0 Physical hazards: N/A

6. Accidental Release Measures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment.
Environmental precautions: Do not let product enter drains.
Methods for containment and cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers disposal.

7. Handling and Storage

Handling Wear personal protective equipment. Ensure adequate ventilation.
Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation.

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

8. Exposure Controls/Personal Protection

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

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Exposure controls:
Handle in accordance with good industrial hygiene and safety practice.
Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection:
Tightly fitting safety goggles. Faceshield (8-inch minimum).
Use equipment for eye protection tested and approved under appropriate government standards.

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 laboratory practices. Wash and dry hands.

Body Protection:
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection:
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Form:	White Light yellow liquid
Odor:	Slight characteristic
Odor Threshold:	N/A
pH:	1.8
Boiling Point/Range:	100°C / 212°F
Melting point/freezing point:	0°C / 32°F
Initial boiling point and boiling range:	N/A
Flash point:	N/A
Evapouration rate:	N/A
Flammability (solid, gas):	N/A
Vapour pressure:	N/A
Vapour density:	N/A
Relative density:	N/A
Partition coefficient: noctanol/water:	N/A
Decomposition temperature:	N/A

(N/A = no data available)

10. Stability and Reactivity

Stability Stable under recommended storage conditions
Conditions to Avoid Excess heat and Incompatible products.

Incompatible materials
Strong oxidizing agents, Strong reducing agents, strong bases, powdered metals. **Hazardous decomposition products**
Carbon monoxide (CO), Carbon dioxide (CO2).

Hazardous Polymerization: Not occur.

11. Toxicology Information

Acute toxicity N/A

Chronic Toxicity

Germ cell mutagenicity	N/A
Carcinogenicity	N/A

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

Reproductive toxicity	N/A
Specific target organ toxicity - single exposure	N/A
Specific target organ toxicity - repeated exposure	N/A
Aspiration hazard	N/A
Additional Information (RTECS)	N/A

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

12. Ecological Information

Toxicity:	N/A
Persistence and degradability:	N/A
Bioaccumulative potential:	N/A
Mobility in soil:	N/A
Results of PBT and vPvB assessment:	N/A

13. Disposal Considerations

Waste treatment methods 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	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety and environmental regulations:	N/A
Chemical Safety Assessment	N/A

Full text of H-Statements referred to under sections 2 and 3.

H272	May intensify fire; oxidiser.
H314	Causes severe skin burns and eye damage.
Ox. Sol.	Oxidizing solids
Skin Corr.	Skin corrosion

Full text of R-phrases referred to under sections 2 and 3

C	Corrosive
R 8	Contact with combustible material may cause fire.
R34	Causes burns.
R35	Causes severe burns.
O	Oxidising

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-3037-4 Silver iodide solution A MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Silver iodide solution A
Product number VB-3037-4
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 #	Weight (%)
Silver Nitrate	7761-88-8	1

3. Hazards Identification

GHS- Classification

Skin corrosion/irritation	Category1
Serious eye damage/eye irritation	Category1
Chronic aquatic toxicity	Category2
Ozone	Not applicable

GHSLabel elements, including precautionary statements
Signal Word
Danger
Hazard statements
H314 - Causes severe skin burns and eye damageH318-
Causes serious eye damage
H411- Toxic to aquatic life with long lasting effects
Precautionary Statements-EU(§28,1272/2008)
P280 - Wear protective gloves/ eye protection/ face protectionP260-
Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handlingP363-
Wash contaminated clothing before reuse
P301+ P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathingP310 Immediately call a POISON CENTER or doctor/ physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy todo. Continue rinsing
P273 - Avoid release to the environmentP391- Collect spillage
P405- Store locked up
P501- Dispose of contents/ container to an approved waste disposal plant

Other information
No information available

4. First Aid Measures

General advice	Immediate medical attention is required.
Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
Inhalation	Move to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Immediate medical attention is required.
Ingestion	Rinse mouth. Do NOT induce vomiting. Immediate medical attention is required.
Notes to physician	Treat symptomatically.
Protection of first-aiders	Use personal protective equipment. Ensure that medical personnel are aware of the material(s)involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	Not flammable.
Flash point	not determined
Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Explosion Data	
Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.
Protective equipment and precautions for firefighters	ear self contained breathing apparatus for firefighting if necessary.

6. Accidental Release Measures

Personal precautions	Use personal protective equipment. Avoid contact with the skin and the eyes. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Try to prevent the material from entering drains or water courses.
Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. After cleaning, flush away traces with water. Prevent product from entering drains. Dam up.

7. Handling and Storage

Advice on safe handling
Wear personal protective equipment. Ensure adequate ventilation. Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist.

Technical measures/Storage conditions
Keep container tightly closed. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

8. Exposure Controls, Personal Protection

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIHTLV	OSHAPEL	NIOSHIDLH
Silver Nitrate	TWA:0.01 mg/m3Ag	TWA: 0.01 mg/m3	IDLH: 10 mg/m3
7761-88-8		Ag(vacated)TWA: 0.01 mg/m3Ag	AgTWA:0.01mg/ m3Ag

Other Exposure Guidelines	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962(11th Cir., 1992).
Engineering measures	Showers, Eye wash stations, Ventilation systems
Personal protective equipment	
Eye/face protection	Tightly fitting safety goggles. Face-shield.
Skin and body protection	Long sleeved clothing. Protective gloves
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Provide regular cleaning of equipment, work area and clothing.

9. Physical and Chemical Properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	5.4-6.4 10% aq solution
Melting Point/Range	212 °C / 413.6 °F
Boiling Point/Range	444 °C / 831.2 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No information available
Vapor Pressure	No data available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	> 444°C
Viscosity	Not applicable
Molecular Formula	Ag N O3
Molecular Weight	169.87

10. Stability and Reactivity

Reactive	Yes
Hazard Stability	Oxidizer: Contact with combustible/organic material may cause fire. Light sensitive.
Conditions to Avoid	Avoid dust formation. Incompatible products. Excess heat. Combustible material. Exposure to light.
Incompatible Materials	Strong oxidizing agents, Strong reducing agents, Combustible material, Metals, Amines
Hazardous Decomposition Products	Nitrogen oxides (NOx)

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

11. Toxicological Information

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Silver nitrate	> 2000 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	LC50 > 750 µg/m3 (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Silver nitrate	7761-88-8	Not listed	Not listed		Not listed	Not listed

Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system
STOT - repeated exposure	Liver Kidney
Aspiration hazard	No information available
Symptoms / effects,both acute and delayed	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Endocrine Disruptor Information	No information available
Other Adverse Effects	The toxicological properties have not been fully investigated.

12. Ecological Information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Silver nitrate	Not listed	Leuciscus idus: : LC500.029 mg/L/96h	Photobacterium phosphoreum: EC50: 0.038 mg/L/24h Photobacterium phosphoreum: EC50: 0.395 mg/l/15min Photobacterium phosphoreum: EC50: 0.44 mg/L/30 min as Ag++ Photobacterium phosphoreum: EC50: 0.86 mg/L/15 min as Ag++	EC50: 0.0006 mg/L/48h

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. Component log Pow Silver nitrate 0.19

13. Disposal Information

Waste Disposal Methods 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

UN-No	UN1493
Proper Shipping Name	SILVER NITRATE
Hazard Class	5.1
Subsidiary Hazard Class	8
Packing Group	II

TDG

UN-No	UN1493
Proper Shipping Name	SILVER NITRATE
Hazard Class	5.1
Packing Group	II

IATA

UN-No	UN1493
Proper Shipping Name	Silver nitrate
Hazard Class	5.1
Packing Group II	

IMDG/IMO

UN-No	UN1493
Proper Shipping Name	Silver nitrate
Hazard Class	5.1
Packing Group	II

15. Regulatory Information

United States of America Inventory

Component	CAS	TSCA	TSCA Inventory notification Active-Inactive	TSCA - EPA Regulatory Flags
Silver nitrate	7761-88-8	X	ACTIVE	-

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Not applicable
Substances & Mixtures, Under TSCA Section 6(h) (PBT)
TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Silver nitrate	7761-88-8	X	-	231-853-9	X	X	X	X	X	KE-31281

U.S. Federal Regulations
SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Silver nitrate	X	1lb	X	-

Clean Air Act Not applicable
OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Silver nitrate	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Silver nitrate	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

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-3037-5 Silver iodide solution B MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name	Silver iodide solution B
Product number	VB-3037-5
Product Description	Kit Component

Manufacturer/Supplier

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

2. Composition/information on ingredients

Component	CAS NO.	Weight (%)
potassium iodide	7681-11-0	5-10

3. Hazards Identification

Specific target organ systemic toxicity (repeated exposure) Category 2

GHS Label elements, including precautionary statements

Signal Word
Warning

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

Precautionary Statements - EU (§28, 1272/2008) P260 - Do not breathe dust/fume/gas/mist/vapors/spray P314 - Get medical advice/ attention if you feel unwell
P501 - Dispose of contents/ container to an approved waste disposal plant

Other information
No information available

4. First Aid Measures

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

5. Fire and Explosion Data

Flammableproperties Not flammable.

Flashpoint not determined

Suitableextinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data
Sensitivity toMechanical Impact None.
Sensitivity toStatic Discharge None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6. Accidental Release Measures

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

7. Handling and Storage

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

Technical measures/Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children

8. Exposure Controls / Personal Protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Potassium Iodide 7681-11-0	TWA: 0.01 ppm inhalable fraction and vapor		

NIOSH IDLH: Immediately Dangerous to Life or Health

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

Engineeringmeasures Showers
Eyewashstations
Ventilation systems

Personal Protective Equipment
Eye/face Protection Tightly fitting safety goggles.
Skin and body protection Long sleeved clothing. Protective gloves.
Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current localregulations.
Hygiene Measures Handle in accordance with good industrial hygiene and safety

practice.

9. Physical and Chemical Properties

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

10. Stability and Reactivity Data

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

11. Toxicological Information

Acute Toxicity

Product Information

Component Information	**LD50 Oral**	**LD50 Dermal**	**LC50 Inhalation**
Potassium Iodide	2779mg/kg (Rat)	LD50>2000mg/kg(Rat)	Not listed

Toxicologically Synergistic Products	No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	May cause irritation
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.
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 May cause pulmonary edema

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological Information

Ecotoxicity .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Potassium iodide		Onchorhynchus mykiss: LC50: 3200 mg/L/120h		

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available

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

Component	log Pow
Potassium iodide	0.04

13. Disposal Considerations

Waste Disposal Methods Dispose of in accordance with federal, state, and local regulations.

Contaminatedpackaging Do not re-use empty containers.

14. Transport Information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. Regulatory Information

U.S. Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	no
Chronic Health Hazard	yes
Fire Hazard	no
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. StateRegulations
California Proposition65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
International Regulations
No information available

WHMIS Note: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. Other Information

This information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of the material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

VB-3037-6 0.5% Acetic Acid MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name 0.5% Acetic Acid
Product number VB-3037-6
Product Description Kit Component

Manufacturer/Supplier

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

2. Composition/information on ingredients

Composition:

Composition	CAS #	Weight %
Glacial Acetic acid	64-19-7	0.5-1
Water	7732-18-5	99-99.5

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

3. Hazards Identification

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

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

4. First Aid Measures

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

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

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

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

Serious Inhalation: Not available.

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

Serious Ingestion: Not available.

5. Fire Fighting Measures

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

Fire Hazards in Presence of Various Substances: N/A
Explosion Hazards in Presence of Various Substances:
Non-explosive in presence of open flames and sparks, of shocks.
Fire Fighting Media and Instructions: N/A
Special Remarks on Fire Hazards: N/A

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

6. Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Poisonous liquid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Finish p. 3 cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

7. Handling and Storage

Precautions:
Keep locked up.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area.
Do not store above 23°C (73.4°F).

8. Exposure Controls / Personal Protection

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

Personal Protection:
Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:

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

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

9. Physical and Chemical Properties

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

10. Stability and Reactivity Data

Stability: The product is stable.

Incompatibility with various substances:
Non-reactive with oxidizing agents, reducing agents, metals, acids, alkalis

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

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

Special Remarks on Corrosivity: N/A

Polymerization: Will not occur.

11. Toxicological Information

Routes of Entry:
Absorbed through skin. Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 331000 mg/kg (Rat) (Calculated value for the mixture).

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

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Acetic acid].

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

Special Remarks on Toxicity to Animals: N/A

Special Remarks on Chronic Effects on Humans:
May affect genetic material and may cause reproductive effects based on animal data.
No human data found. (Acetic acid)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: causes skin irritation Eyes: causes eye irritation. Inhalation: causes respiratory tract irritation. Irritates mucous membranes. Ingestion: may cause gastrointestinal tract irritation

12. Ecological Information

Ecotoxicity: N/A

BOD5 and COD: N/A

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks of Biodegradation: N/A

13. Disposal Considerations

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

14. Transport Information

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

Identification: N/A

Special Provisions for Transport: N/A

15. Regulatory Information

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

DSCL (EEC):
R25- Toxic if swallowed. R36/38- Irritating to eyes and skin. S1/2- Keep locked up and out of the reach of

children. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

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

National Fire Protection Association (U.S.A.):
Health: 1 Flammability: 0 Reactivity: 0

Protective Equipment: Gloves. Lab coat. Splash goggles.

16. Other Information

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-3037-7 Developer Solution A MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Developer Solution A
Product number VB-3037-7
Product Description Kit Component

Manufacturer/Supplier

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

2. Composition/information on ingredients

Component	CAS NO.	Weight (%)
Anhydrous sodium carbonate	497-19-8	5-10

3. Hazards Identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Label Elements
None required
Hazards not otherwise classified (HNOC)
None identified

4. First Aid Measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if symptoms occur.
Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Inhalation Remove to fresh air. Get medical attention if symptoms occur. If not breathing, give artificial respiration.
Ingestion Do NOT induce vomiting. Get medical attention if symptoms occur.
Most important symptoms and effects No information available.
Notes to Physician Treat symptomatically

5. Fire and Explosion Data

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media No information available
Flash Point No information available
Method No information available
Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available
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

Specific Gravity	1.0
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable

10. Stability and Reactivity Data

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat
Incompatible Materials	Acids
Hazardous Decomposition Products	Sodium oxides
Hazardous Polymerization	Hazardous polymerization does not occur
Hazardous Reactions	None under normal processing.

11. Toxicological Information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information	**LD50 Oral**	**LD50 Dermal**	**LC50 Inhalation**
Sodium Carbonate	2800 mg/kg (Rat)	>2000mg/kg(Rabbit)	2.3mg/L 2h(Rat)

Toxicologically Synergistic Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	No information available.
Sensitization	No information available.
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	**CAS No**	**IARC**	**NTP**	**ACGIH**	**OSHA**	**Mexico**
Sodium Thiosulfate	7772-98-7	Not listed	Not listed	Not listed	Not listed	Not listed

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	None known
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

Component	**Freshwater Algae**	**Freshwater Fish**	**Microtox**	**Water Flea**
Sodium carbonate	Not listed	Lepomis macrochirus: LC50: 300 mg/L/96h Gambusia affinis: LC50: 740 mg/L/96h		EC50: = 265 mg/L, 48h (Daphnia magna)

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 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	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated

15. Regulatory Information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

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.

16. Other Information

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Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

VB-3037-8 Developer solution B MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Developer solution B
Product number VB-3037-8
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 #	Weight(%)
Tungstosilicic acid	12027-43-9	1-2

3. Hazards Identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.
Skin Corrosion/Irritation Category 1 C
Serious Eye Damage/Eye Irritation Category 1
Specific target organ toxicity (single exposure) Category 3
Target Organs - Respiratory system.

Label Elements
Signal Word
Danger
Hazard Statements
Causes severe skin burns and eye damage
May cause respiratory irritation
Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Storage
Store locked up Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

Harmful to aquatic life with long lasting effects

4. First Aid Measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur. Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur

Most important symptoms and effects None reasonably foreseeable. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable Extinguishing Media CO 2, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Silicon dioxide. Tungsten oxides.

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	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental Release Measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust forma

7. Handling and Storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong bases

8. Exposure Controls, Personal Protection

Exposure Guidelines

Chemical Name	ACGIH	OSHA PEL	NIOSH	Mexico OEL (TWA)
Tungstosilicic acid hydrate	TWA:3mg/m3	(Vacated) TWA:5mg/m3 (Vacated) STEL:10mg/m3	TWA: 5mg/m3 STEL: 10mg/m3	TWA: 5 mg/m3 STEL: 10 mg/m3

Legend
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures None under normal use conditions. 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 Wear appropriate protective gloves and clothing to

9. Physical and Chemical Properties

Physical State: Solid
Appearance: light yellow
Odor: Odorless
pH: 1.98 Acidic
Melting Point/Range 25 °C / 77 °F
Boiling Point/Range No information available
Flash Point Not applicable Evaporation Rate Not applicable
Flammability (solid,gas) No information available
Flammability or explosive limits
Upper No data available
Lower No data available
Vapor Pressure No information available
Vapor Density Not applicable
Specific Gravity 4.5
Solubility Soluble in water
Partition coefficient; n-octanol/water No data available
Autoignition Temperature No information available
Decomposition Temperature No information available
Viscosity Not applicable
Molecular Formula H4-O4O-Si-W12
Molecular Weight 2878.2895

10. Stability and Reactivity

Reactive Hazard None known, based on information available
Stability Stable under normal conditions.
Conditions to Avoid Incompatible products.
Incompatible Materials Strong bases
Hazardous Decomposition Products Silicon dioxide, Tungsten oxides
Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions None under normal process

11. Toxicological Information

Acute Toxicity
Product Information
Oral LD50 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. Mist LC50 Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.

Component Information
Toxicologically Synergistic

Products	No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	No information available
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen
Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system
STOT - repeated exposure	None known
Aspiration hazard	No information available
Symptoms / effects,both acute and delayed	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Endocrine Disruptor Information	No information available
Other Adverse Effects	The toxicological properties have not been fully investigated

12. Ecological Information

Ecotoxicity	May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.
Persistence and Degradability	May persist based on information available.
Bioaccumulation/ Accumulation	No information available.
Mobility	Will likely be mobile in the environment due to its water solubility.

13. Disposal Information

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

UN-No	UN3260
Proper Shipping Name	Corrosive solid, acidic, inorganic, n.o.s. Technical Name Tungstate(4-), [.mu.12-(orthosilicato(4-)-O:O:O:O':O':O':O':O":O":O":O"':O"':O "')]tetracosa-.mu.-oxododecaoxododeca-, tetrahydrogen, hydrate
Hazard Class	8
Packing Group	III

TDG

UN-No	UN3260
Proper Shipping Name	Corrosive solid, acidic, inorganic, n.o.s.
Hazard Class	8
Packing Group	III

IATA

UN-No	UN3260
Proper Shipping Name	Corrosive solid, acidic, inorganic, n.o.s.
Hazard Class	8
Packing Group	III

IMDG/IMO

UN-No	UN3260
Proper Shipping Name	Corrosive solid, acidic, inorganic, n.o.s.
Hazard Class	8

Packing Group III

15. Regulatory Information

US Federal regulations
TUNGSTOSILICIC ACID hydrate (12027-38-2/12520-88-6)
TSCA Exemption/Exclusion
CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

Tungstosilicic acid hydrate (12027-38-2/12520-88-6)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

International regulations
CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

16. Other Information

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Abbreviations and acronyms:
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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-3037-9 Developer solution C MSDS

1. Identification of the Substance/Mixture and Company

Identification of the substance or mixture

Product Name Developer Solution C
Product number VB-3037-9
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

Chemical characterization:

Dangerous components:		
CAS: 50-00-0	Formaldehyde	0.5%-1%

3. Hazards Identification

Label Elements

Signal Word: Danger

Hazard Statements:
May be corrosive to metals
Harmful if swallowed
Causes severe skin burns and eye damage
May cause an allergic skin reaction
Harmful if inhaled
May cause cancer
Causes damage to organs
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use personal protective equipment as required Wash face, hands and any exposed skin after handling.
Do not eat, drink or smoke when using this product Use only outdoors or in a well-ventilated.
Do not breathe dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.
Keep only in original container

Response:
Immediately call a POISON CENTER or doctor/physician,

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse If skin irritation or rash occurs: Get medical advice/attention.

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

Ingestion
Rinse mouth, Do NOT induce vomiting.

Spills
Absorb spillage to prevent material damage

Storage
Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store in corrosive resistant polypropylene container with a resistant inliner Store in a dry place.

Disposal
Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)

Other hazards
WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

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.

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

5. Firefighting Measures

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO 2). Foam. Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media
No information available.

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
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known

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: 3 Flammability: 1 Instability: 0 Physical hazard: N/A

6. Accidental Release Measures

Personal Precautions
Do not get in eyes, on skin, or on clothing.
Use personal protective equipment. Evacuate personnel to safe.
Keep people away from and upwind of spill/leak.

Environmental Precautions
See Section 12 for additional ecological information.
Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

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

7. Handling and Storage

Handling:
away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, 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 containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

8. Exposure Controls/Personal Protection

Control parameters

Picric Acid, Wetted (88-89-1)

OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³
IDLH	US IDLH (mg/m³)	75 mg/m³
NIOSH	NIOSH REL (TWA) (mg/m³)	0.1 mg/m³
NIOSH	NIOSH REL (STEL) (mg/m³)	0.3 mg/m³

Formaldehyde, 37% w/w (50-00-0)

ACGIH	ACGIH Ceiling (mg/m³)	0.37 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	0.75 ppm
OSHA	OSHA PEL (STEL) (ppm)	2 ppm
IDLH	US IDLH (ppm)	20 ppm
NIOSH	NIOSH REL (TWA) (ppm)	0.016 ppm
NIOSH	NIOSH REL (ceiling) (ppm)	0.1 ppm 15 min

Acetic Acid (64-19-7)

ACGIH	ACGIH TWA (ppm)	10 ppm (Acetic acid; USA; Time-weighted Average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	15 ppm (Acetic acid; USA; Short time value; TLV - Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m³)	25 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	10 ppm
IDLH	US IDLH (ppm)	50 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	25 mg/m³

NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (STEL) (mg/m³) 37 mg/m³	
NIOSH	NIOSH REL (STEL) (ppm)	15 ppm

Water (7732-18-5) N/A

Methanol (67-56-1)

ACGIH	ACGIH TWA (ppm)	200 ppm (Methanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	250 ppm (Methanol; USA; Short time value; TLV -Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
IDLH	US IDLH (ppm)	6000 ppm
NIOSH (mg/m³)	NIOSH REL (TWA)	250 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
NIOSH (mg/m³)	NIOSH REL (STEL)	325 mg/m³
NIOSH	NIOSH REL (STEL) (ppm)	250 ppm
NIOSH		Skin

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH - The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Exposure controls

Appropriate engineering controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.
Personal protective equipment	Safety glasses. Gloves. Protective clothing. High gas/vapor concentration: gas mask with filter type B.
Hand protection	Wear protective gloves.
Eye protection	Chemical goggles or face shield.
Skin and body protection	Wear suitable protective clothing.
Respiratory protection	Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.
Other information	Do not eat, drink or smoke during use.

9. Physical and Chemical Properties

Physical State	Liquid
Appearance	Yellow
Odor	pungent
Odor Threshold	No information available
pH	No information available
Melting Point/Range	> 0 °C

Boiling Point/Range	N/A
Flash Point	N/A
Evaporation Rate	N/A
Flammability (solid,gas)	N/A
Flammability or explosive limits	
Upper	N/A
Lower	N/A
Vapor Pressure	N/A
Vapor Density	> 1.0
Relative Density	> 1.000
Solubility	Soluble in water
Partition coefficient; n-octanol/water	N/A
Autoignition Temperature	N/A
Decomposition Temperature	N/A
Viscosity	N/A

10 Stability and Reactivity

Chemical Stability
Stable at normal temperatures and pressure.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. May ignite or explode on contact with combustible materials.

Materials to Avoid
acids, anhydrides, aniline, bases, isocyanates, metals, oxidizing materials, phenols, reducing agents

Decomposition Products
Thermal decomposition or combustion products: oxides of carbon, oxides of nitrogen

Possibility of Hazardous Reactions
Will not polymerize

11. Toxicology Information

Acute Toxicity

Oral LD50	Category 4. ATE = 300 - 2000 mg/kg.
Dermal LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50	Category 4. ATE = 10 - 20 mg/l.

Component information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Formaldehyde	500 mg/kg (Rat)	270 mg/kg (Rabbit)	0.578 mg/L (Rat) 4 h
Methyl alcohol	6200 mg/kg (Rat)	15800 mg/kg (Rabbit)	83.2 mg/L (Rat) 4 h
Acetic acid	3310 mg/kg (Rat)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h
Picric acid	200 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products: N/A

Chronic effects from short and long-term exposure :

Irritation: Causes burns by all exposure routes

Sensitization: May cause sensitization by skin contact
Carcinogenicity: Possibly carcinogenic to human

Mutagenic Effects: Mutagenic effects have occurred in humans.

Reproductive Effects: Experiments have shown reproductive toxicity effects on laboratory.

Developmental Effects: Developmental effects have occurred in experimental animals.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

STOT - single exposure: Respiratory system
STOT - repeated exposure: Kidney Liver spleen Blood

Aspiration hazard: N/A

Symptoms / effects,both acute and delayed:

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger. Operforation: Symptoms of allergic reaction may include rash, itching,swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Endocrine Disruptor Information N/A

Other Adverse Effects:
Tumorigenic effects have been reported in experimental animals.

12. Ecological Information

Ecotoxicity N/A
BOD5 and COD N/A

Products of Biodegradation
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation
The products of degradation are more toxic.

13. Disposal Considerations

Disposal methords:
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.

Component Waste Numbers:
Formaldehyde - 50-00-0

14. Transport Information

Department of Transportation (DOT)

In accordance with DOT	
Transport document description	UN3265 Corrosive liquid, acidic, organic, n.o.s., 8, III
UN-No.(DOT)	UN3265
Proper Shipping Name (DOT)	Corrosive liquid, acidic, organic, n.o.s.
Transport hazard class(es) (DOT)	8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT)	III - Minor Danger
Hazard labels (DOT)	8 - Corrosive
DOT Packaging Non Bulk (49 CFR 173.xxx)	203
DOT Packaging Bulk (49 CFR 173.xxx)	241

DOT Symbols	G - Identifies PSN requiring a technical name
DOT Symbols	G - Identifies PSN requiring a technical name
DOT Special Provisions (49 CFR 172.102)	IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2);
DOT Packaging Exceptions (49 CFR 173.xxx)	154
DOT Vessel Stowage Location	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	40 - Stow ‘‘clear of living quarters’’
Other information	No supplementary information available.

15. Regulatory Information

US Federal regulations

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Formaldehyde, 37% w/w (50-00-0)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	0.1 %

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-3037-10 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-3037-10
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 #	Weight (%)
Nuclear Fast Red	6409-77-4	0.1

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

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. Fire Fighting 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
Product Information

Oral LD50	**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 Information

Waste Disposal Method:
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	Not regulated
TDG	Not regulated
IATA	Not regulated

15. Regulatory Information

United States of America Inventory
TSCA 12(b) - Notices of Export Not applicable

International regulations
CANADA
No additional information available

EU-Regulations
No additional information available

U.S. Federal Regulations

SARA 313	Not applicable
SARA 311/312 Hazard Categories	See section 2 for more information
CWA (Clean Water Act)	Not applicable
Clean Air Act	Not applicable
OSHA - Occupational Safety and Health Administration	Not applicable
CERCLA	Not applicable
California Proposition 65	This product does not contain any Proposition 65 chemicals.
U.S. State Right-to-Know Regulations	Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade	No information available

16. Other Information

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