



**MATERIAL SAFETY DATA SHEET (MSDS)**

**Kit Name: Martius Scarlet Blue (MSB) Stain Kit**

**SKU #: VB-3036**

**Revision Date: 04-16-2024**

**Components:**

VB-3036 -1	Bouin's solution
VB-3036-2	Weigert's Hematoxylin Solution A
VB-3036-3	Weigert's Hematoxylin Solution B
VB-3036-4	Martius Yellow Solution
VB-3036-5	Brilliant Crystal Scarlet Solution
VB-3036-6	Phosphotungstic Acid Solution
VB-3036-7	Aniline Blue Solution
VB-3036-8	1% Acetic Acid Solution

## VB-3036-1 Bouin's Solution MSDS

### 1. Identification of the Substance/Mixture and Company

#### Identification of the substance or mixture

**Product Name** Bouin's solution  
**Product number** VB-3036-1  
**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:

Component	CAS#
Formaldehyde	50-00-0
Acetic acid	64-19-7
Picric acid	88-89-1
Water	7731-18-5

### 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. Fire and Explosion Data**

**Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). 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, closed containers 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/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
IDLH	US IDLH (mg/m <sup>3</sup> )	75 mg/m <sup>3</sup>
NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
NIOSH	NIOSH REL (STEL) (mg/m <sup>3</sup> )	0.3 mg/m <sup>3</sup>

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

ACGIH	ACGIH Ceiling (mg/m <sup>3</sup> )	0.37 mg/m <sup>3</sup>
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)
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ACGIH	ACGIH STEL (ppm)	15 ppm (Acetic acid; USA; Short time value; TLV - Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	25 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	10 ppm
IDLH	US IDLH (ppm)	50 ppm
NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	25 mg/m <sup>3</sup>
NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (STEL) (mg/m <sup>3</sup> ) 37 mg/m <sup>3</sup>	
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/m <sup>3</sup> )	260 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
IDLH	US IDLH (ppm)	6000 ppm
NIOSH (mg/m <sup>3</sup> )	NIOSH REL (TWA)	250 mg/m <sup>3</sup>
NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
NIOSH (mg/m <sup>3</sup> )	NIOSH REL (STEL)	325 mg/m <sup>3</sup>
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

<b>Physical State</b>	Liquid
<b>Appearance</b>	Yellow
<b>Odor</b>	pungent
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	> 0 °C
<b>Boiling Point/Range</b>	N/A
<b>Flash Point</b>	N/A
<b>Evaporation Rate</b>	N/A
<b>Flammability (solid,gas)</b>	N/A
<b>Flammability or explosive limits</b>	
<b>Upper</b>	N/A
<b>Lower</b>	N/A
<b>Vapor Pressure</b>	N/A
<b>Vapor Density</b>	> 1.0
<b>Relative Density</b>	> 1.000
<b>Solubility</b>	Soluble in water
<b>Partition coefficient; n-octanol/water</b>	N/A
<b>Autoignition Temperature</b>	N/A
<b>Decomposition Temperature</b>	N/A
<b>Viscosity</b>	N/A

## 10. Stability and Reactivity Data

### 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. Toxicological 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
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**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 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.

**Component Waste Numbers:**

Formaldehyde - 50-00-0  
Methyl alcohol - 67-56-1

## 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

#### Bouin's Fixative

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

Picric Acid, Wetted	CAS No 88-89-1	1.3%
Methanol	CAS No 67-56-1	3.6%

#### Picric Acid, Wetted (88-89-1)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard Fire hazard
SARA Section 313 - Emission Reporting	1 %

#### 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 %

#### Acetic Acid (64-19-7)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
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**Methanol (67-56-1)**

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard

**16. Other Information**

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

Abbreviations and acronyms:

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

**ACGIH:** American Conference of Governmental Industrial Hygienists

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**VB-3036-2 Weigert's Hematoxylin Solution A MSDS**

**1. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Weigert's Hematoxylin Solution A  
**Product number** VB-3036-2  
**Product Description** Kit Component

**Manufacturer/Supplier**

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

**2. Composition/information on ingredients**

**Composition:**

Name	CAS #
Hematoxylin	517-28-2
Ethyl alcohol	64-17-5
Water	7732-18-5

**3. Hazards Identification**

**GHS CLASSIFICATION:**

Flammable liquid Category 2; Acute toxicity, oral Category 5; Acute toxicity, dermal Category 5; Serious eye damage/eye irritation Category 2B

Signal Word: Danger!

Hazard Phrases	
H225	Highly flammable liquid and vapor.
H303+H313	May be harmful if swallowed or in contact with skin.
H320	Causes eye irritation.

Precautionary Phrases	
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P280	Wear protective gloves/ eye protection/ face protection.
P242	Use only non-sparking tools.
P233	Keep container tightly closed.
P243	Take precautionary measures against static discharge.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or physician.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN: Remove/take off all contaminated clothing. Rinse skin with water shower

**4. First Aid Measures**

**Eye Exposure:** In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

<b>Dermal Exposure:</b>	In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.
<b>Oral Exposure:</b>	If Swallowing seek immediate medical advice.
<b>Inhalation Exposure:</b>	If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

## 5. Fire Fighting Measures

### NFPA

Health: 2      Flammability: 4      Reactivity: 1

### General Information:

Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

### Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

**Flash Point:** 16.6 deg C ( 61.88 deg F)

**Autoignition Temperature:** 363 deg C ( 685.40 deg F)

**Explosion Limits:** Upper: 19.0 vol %  
Lower: 3.3 vol %

## 6. Accidental Release Measures

### Small spill and leak:

Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8). Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

### Large spill and leak:

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

## 7. Handling and Storage

### Handling:

Do not get in eyes, on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and

equipment before transferring material. Use empty containers to retain product, residue can be hazardous. Do not reuse container.

**Storage:**

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container, protected from direct sunlight. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

**8. Exposure Controls, Personal Protection**

**Engineering Controls:**

Use explosion-proof ventilation equipment.  
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits**

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ethanol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** Ethanol: 1000 ppm TWA; 1900 mg/m<sup>3</sup> TWA

**Personal Protective Equipment**

**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.

**Respirators:**

Respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**Engineering Controls:** Mechanical exhaust

**Personal Protective:**

Other: Wear appropriate government approved respirator, chemical-resistant gloves.

**Equipment:**

safety goggles, other protective clothing.

**9. Physical and Chemical Properties**

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Amber. Darkens with age.
<b>Odor:</b>	Alcohol-like
<b>pH:</b>	N/A
<b>Vapor Pressure (mmHg):</b>	40 @ 19°C
<b>Vapor Density(AIR = 1):</b>	1.6
<b>Evaporation Rate:</b>	N/A
<b>Viscosity:</b>	N/A
<b>Boiling Point:</b>	N/A

**Solubility:** Soluble in water.

## 10. Stability and Reactivity

**Chemical Stability:**

Stable under normal temperatures and pressures.

**Conditions to Avoid:**

Incompatible materials, ignition sources, excess heat, oxidizers.

**Incompatibilities with Other Materials:**

Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.

**Hazardous Decomposition Products:**

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide

**Hazardous Polymerization:**

Will not occur.

## 11. Toxicological Information

**Hematoxylin RTECS:** MH7875000  
LD50/LC50: N/A

**Ethyl Alcohol RTECS:** KQ6300000  
Oral (LD50): Acute mg/kg [Rat]. 3450 mg/kg [Mouse].

**Routes of Entry:** Multiple routes: May be harmful by inhalation, ingestion, or skin absorption.

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

**Solution Carcinogenicity:** Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:**

Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".

**Teratogenicity:**

Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception) Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence.

**Reproductive Effects:**

Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).

**Mutagenicity:**

DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast = 12000 ppm.; Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous).

**Other Studies:**

Standard Draize Test(Skin, rabbit) = 20 mg/24H (Moderate) Standard Draize Test: Administration into the

eye (rabbit) = 500 mg (Severe).

## 12. Ecological Information

### Toxicity:

#### Acute fish Toxicity (Ethanol)

LC50 *Oncorhynchus mykiss* (rainbow trout) >10,000 mg/l 96hr

LC50 *Pimephales promelas* (fathead minnow) >13,400 mg/l 96hr

#### Persistence and Degradability

Biodegradation is expected

#### Bioaccumulative Potential

Bioaccumulation is unlikely

#### Mobility in Soil

N/A

#### PBT and vPvB Assessment

Not required

## 13. Disposal Information

### Waste Disposal Method:

Unused product: dispose as a regulated hazardous waste. Spent product or spill cleanup follow all provincial, local, state, and federal regulations..

## 14. Transport Information

**DOT Proper shipping name** : Alcohols, N.O.S. UN1987 PG II  
Hazard class 3 (flammable)

## 15. Regulatory Information

### U.S. Department of Transportation:

**DOT Classification:** F

### Risk Phrases:

R11 Highly flammable.

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed

R36/38 Irritating to eyes and skin

R42/43 May cause sensitization by inhalation and skin contact

R61 May cause harm to the unborn child

R48/20/21/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

### Safety Phrases:

S37/39 Wear suitable gloves and eye/face protection

S20/21 When using do not eat, drink or smoke

S2 Keep out of the reach of children

S16 Keep away from sources of ignition - No smoking

S33 Take precautionary measures against static discharges

S7 Keep container tightly closed.

S9 Keep container in a well-ventilated place

S24/25 Avoid contact with skin and eyes

## 16. Other Information

This information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product.

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

Abbreviations and acronyms:

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

**ACGIH:** American Conference of Governmental Industrial Hygienists

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## VB-3036-3 Weigert's Hematoxylin Solution B MSDS

### 1. Identification of the Substance/Mixture and Company

#### Identification of the substance or mixture

**Product Name** Weigert's Hematoxylin Solution B  
**Product number** VB-3036-3  
**Product Description** Kit Component

#### Manufacturer/Supplier

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

### 2. Composition/information on ingredients

**Chemical Description:** An aqueous solution of ferric chloride and hydrochloric acid.

Name	CAS #.
Ferric Chloride	10025-77-1
Acetic acid	64-19-7
Water	7732-18-5

### 3. Hazards Identification

**GHS Classification** Acute Oral Toxicity Category 5, Skin Irritation Category 3;  
Serious Eye Damage Category 2B

**Signal Word** Warning!

Hazard Phrases	
H303	May be harmful if swallowed.
H316	Causes mild skin irritation.
H320	Causes eye irritation.

Precautionary Phrases	
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
P337+P315	If eye irritation persists, get immediate medical attention.
P312	Call a POISON CENTER/doctor/physician if you feel unwell

### 4. First Aid Measures

#### **Eyes:**

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation persists

#### **Skin:**

Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. If irritation persists, get medical attention.

#### **Ingestion:**

Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.



**Inhalation:**

Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms worsen.

**5. Fire Fighting Measures****Flammability of the Product:**

**Flash Point:** Not available

**Autoignition Temperature:** Not available

**NFPA Hazard Classification:**

Health: 1      Flammability: 0      Reactivity: 0      Other:

**HMIS Hazard Classification:**

Health: 1      Flammability: 0      Reactivity: 0      Protection: B

**Extinguishing Media:**

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

**Special Fire Fighting Procedures:**

As with any fire, wear personal protection equipment, including a self-contained breathing apparatus (S.C.B.A.)

**6. Accidental Release Measures****Small spill and leak:**

Wear chemical resistant clothing, gloves and eye protection. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large spill and leak:**

Wear chemical resistant clothing, gloves and eye protection. Wear NIOSH/MSHA approved breathing apparatus. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

**Section 6 Notes:**

Keep material away from heat, flame, ignition sources, and reactive materials. Don't allow product to enter drains.

**7. Handling and Storage****Handling:**

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

**Storage:**

Store in well ventilated area. Keep container tightly closed. Store at 15-30°C

**8. Exposure Controls / Personal Protection****Engineering Controls:**

Working areas should be adequately large and well ventilated to prevent concentration of vapors. Provide mechanical exhaust ventilation or other engineering controls to keep airborne concentration of vapors below their respective threshold limits.

**Respiratory Protection:** Avoid breathing vapor.

**Eye Protection:**

Safety glasses or goggles are required

**Skin Protection:**

Chemical resistant gloves are required. Glove material must be resistant to the components of this product.

**Other Protective Clothing or Equipment:**

Protective clothing is required, lab coat or apron.

**Work Hygienic practice:**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Exposure guidelines:**

Component	Source	Type	Value
Hydrochloric acid	OSHA PEL	TWA	5 ppm
	OSHA PEL	STEL	5 ppm
	ACGIH TLV	TWA	5 ppm
	ACGIH TLV	STEL	1 ppm
	NIOSH REL	TWA	1 ppm
Ferric Chloride	NIOSH REL	STEL	1 ppm
	OSHA PEL	TWA	1 mg(Fe)/m3
	ACGIH TLV	TWA	1 mg(Fe)/m3

**9. Physical and Chemical Properties**

<b>Appearance:</b>	Clear yellow
<b>Odor:</b>	pungent odor
<b>Physical State:</b>	Liquid
<b>pH AS Supplied:</b>	Unknown
<b>Boiling Point:</b>	100°C
<b>Melting Point / Freezing Point:</b>	Unknown
<b>Vapor Pressure (mmHg):</b>	18 @ 20°C
<b>Vapor Density (AIR = 1):</b>	0.6
<b>Evaporation Rate: (water=1)</b>	1
<b>Solubility in water:</b>	Soluble in water
<b>Molecular Weight:</b>	Mixture
<b>Viscosity:</b>	Not established

**10. Stability and Reactivity Data**

**Stability:** Product is stable under normal conditions of use.

**Conditions to avoid (Stability):** Excessive heat, direct sunlight

**Incompatibility (Material to avoid):** Strong alkalis

**Hazardous decomposition or by-products:** Hydrogen chloride, oxides of carbon.

**Hazardous polymerization:** No hazardous polymerization

**11. Toxicological Information**

**Routes of entry:** Skin/eye contact, inhalation, and ingestion.

**Acute toxicity:**

**Oral LD50**

N/A

<b>Inhalation LC50</b>	N/A
<b>Dermal LD50</b>	N/A
<b>Other information on acute toxicity</b>	N/A
<b>Skin corrosion/irritation</b>	Irritating to skin and mucous membranes
<b>Serious eye damage/eye irritation</b>	Irritating to eyes.
<b>Respiratory or skin sensitization</b>	N/A
<b>Germ cell mutagenicity</b>	N/A

**Carcinogenicity:**

**IARC**

Hydrochloric Acid is listed as Group 3 – Not classifiable as to carcinogenicity in humans

**NTP**

None of the components are listed.

<b>Specific target organ toxicity:</b>	N/A
<b>Aspiration hazard:</b>	N/A

**Potential health effects:**

**Inhalation:** May be irritating to mucous membranes.

**Ingestion:** While the toxicity of this compound is low, large doses may cause nausea, vomiting, diarrhea.

**Skin Contact:** Mild skin irritation.

**Eye Contact:** May be irritating to eyes.

**Signs and Symptoms of Exposure:**

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

**12. Ecological Information**

**TOXICITY:**

- Fish:** No relevant studies identified
- Crustacea:** No relevant studies identified
- Algae/Aquatic plants:** No relevant studies identified
- Other organisms:** No relevant studies identified

**PERSISTENCE AND DEGRADABILITY:** Biodegradable  
**BIOACCUMULATIVE POTENTIAL:** No relevant studies identified

**MOBILITY IN SOIL:** Miscible in water. May spread in water systems.  
**PBT and vPvB ASSESSMENT:** Not required.

**SECTION 12 NOTES:** Iron salts are expected to be toxic to aquatic life.

**13. Disposal Considerations**

**WASTE DISPOSAL METHOD:**

Unused product: dispose as a regulated hazardous waste. Spent product spill cleanup follow all provincial, local, state, and federal regulations.

**RCRA HAZARD CLASS:** Not classified

**14. Transport Information**

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

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

## 15. Regulatory Information

**United States**  
**HCS Classification: Irritant**

### U.S. Federal regulations:

**TSCA (Toxic Substance Control Act):** All of the components are listed on the TSCA Inventory.

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** Hydrochloric acid RQ 5000

**SARA 302/304/311/312 hazardous chemicals:**

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

Immediate (acute) health hazard, Delayed (chronic) health hazard

**SARA 313 Listed:** Ferric Chloride CAS 10025-77-1

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):**

**DEA List I & II Chemicals**

**(Precursor Chemicals):** Not listed

**RTK STATES:** Hydrochloric Acid CAS #7647-01-0 CA, FL, MA, MN, PA, NJ, RI, CT

**CEPA DSL / CEPA NDSL:**

All components are listed or exempted. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

## 16. Other Information

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

Abbreviations and acronyms:

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

**ACGIH:** American Conference of Governmental Industrial Hygienists

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**VB-3036-4 Martius Yellow Solution MSDS**

**2. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Martius Yellow Solution  
**Product number** VB-3036-4  
**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**

<b>Component</b>	<b>CAS NO.</b>
Martius Yellow	605-69-6

**3. Hazards Identification**

**GHS Classification:** Skin Sensitization Category 1B, Skin Irritation Category 3  
**Signal Word:** Warning!

<b>Hazard Phrases</b>	
H317	May cause an allergic skin reaction.
H315	Causes skin irritation.

<b>Precautionary Phrases</b>	
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P280	Wear protective gloves/ eye protection/ face protection.

**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 symptoms occur.

**Skin:**

In case of contact, flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.

**Ingestion:**

Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

**Inhalation:**

Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms occur.

**5. Fire and Explosion Data**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

**6. Accidental Release Measures****Personal precautions**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

**Environmental precautions**

Do not let product enter drains.

**Methods and materials for containment and cleaning up**

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**7. Handling and Storage****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**8. Exposure Controls / Personal Protection****Personal protective equipment****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. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirator and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand 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.

**Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and 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.

**Environmental Exposure Control:**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Work Hygiene Practice:**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and

using lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash station and safety.

## 9. Physical and Chemical Properties

<b>Appearance</b>	Orange
<b>Odor</b>	Odorless
<b>Physical state</b>	liquid
<b>pH as supplied</b>	Not Available
<b>Boiling point</b>	Not Available
<b>Melting point/freezing point</b>	Not Available
<b>Vapor pressure (mmHg)</b>	Not Available
<b>Vapor density</b>	Not Available
<b>Evaporation</b>	Not Available
<b>Solubility Water</b>	Soluble in water
<b>Molecular Weight</b>	Mixture
<b>Viscosity</b>	Not established

## 10. Stability and Reactivity Data

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Materials to avoid

Oxidizing agents, Strong oxidizing agents, Metals, Amines, Alcohols, Peroxides, permanganates, e.g. potassium permanganate, Soluble carbonates and phosphates, Hydroxides

### Hazardous decomposition products

formed under fire conditions. - Carbon oxides  
Other decomposition products - no data available

## 11. Toxicological Information

### Acute toxicity

<b>Oral LD50</b>	no data available
<b>Inhalation LC50</b>	no data available
<b>Dermal LD50</b>	no data available
<b>Skin corrosion/irritation</b>	no data available
<b>Serious eye damage</b>	no data available
<b>Germ cell mutagenicity</b>	no data available
<b>Carcinogenicity</b>	no component of this product

### Signs and Symptoms of Exposure

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

<b>Toxicity</b>	no data available
<b>Persistence and degradability</b>	no data available
<b>Bioaccumulative potential</b>	no data available
<b>Mobility in soil</b>	no data available
<b>PBT and vPvB assessment</b>	no data available
<b>Other adverse effects</b>	no data available

## 13. Disposal Considerations

### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated packaging

Dispose of as unused product.

## 14. Transport Information

### DOT (US)

Not dangerous goods

### IMDG

Not dangerous goods

### IATA

Not dangerous goods

## 15. Regulatory Information

### United States

#### **OSHA/HCS Classification:**

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

#### **U.S. Federal regulations:**

**TSCA (Toxic Substance Control Act):** All components are listed on the TSCA Inventory

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:**

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

**CEPA DSL / CEPA NDSL** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.



## 16. Other Information

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

Abbreviations and acronyms:

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

**ACGIH:** American Conference of Governmental Industrial Hygienists

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## VB-3036-5 Brilliant Crystal Scarlet Solution MSDS

### 1. Identification of the Substance/Mixture and Company

#### Identification of the substance or mixture

**Product Name** Brilliant Crystal Scarlet Solution  
**Product number** VB-3036-5  
**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.
Crystal Scarlet	2766-77-0
Acetic Acid	64-19-7

### 3. Hazards Identification

**GHS Classification:** Skin Sensitization Category 1B, Skin Irritation Category 3  
**Signal Word:** Warning!

Hazard Phrases	
H317	May cause an allergic skin reaction.
H315	Causes skin irritation.

Precautionary Phrases	
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P280	Wear protective gloves/ eye protection/ face protection.

### 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 symptoms occur.

#### **Skin:**

In case of contact, flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.

#### **Ingestion:**

Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

#### **Inhalation:**

Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms occur.

### 5. Fire and Explosion Data

#### **Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

**6. Accidental Release Measures****Personal precautions**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

**Environmental precautions**

Do not let product enter drains.

**Methods and materials for containment and cleaning up**

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**7. Handling and Storage****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**8. Exposure Controls / Personal Protection****Personal protective equipment****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. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirator and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand 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.

**Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and 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.

**Environmental Exposure Control:**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Work Hygiene Practice:**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash station and safety.

**Exposure Guidelines:**

Component	Source	Type	Value
Acetic Acid	OSHA PEL	TWA	10 ppm (25 mg/m3 )
	NIOSH REL	TWA	10 ppm (25 mg/m3 )
	ACGIH TLV	TWA	10 ppm

**9. Physical and Chemical Properties**

<b>Appearance</b>	Dark Red
<b>Odor</b>	Slight vinegar odor
<b>Physical state</b>	liquid
<b>pH as supplied</b>	Not Available
<b>Boiling point</b>	Not Available
<b>Melting point/freezing point</b>	Not Available
<b>Vapor pressure (mmHg)</b>	Not Available
<b>Vapor density</b>	Not Available
<b>Evaporation</b>	Not Available
<b>Solubility Water</b>	Soluble in water
<b>Molecular Weight</b>	Mixture
<b>Viscosity</b>	Not established

**10. Stability and Reactivity Data**

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Oxidizing agents, Strong oxidizing agents, Metals, Amines, Alcohols, Peroxides, permanganates, e.g. potassium permanganate, Soluble carbonates and phosphates, Hydroxides

**Hazardous decomposition products**

formed under fire conditions. - Carbon oxides  
Other decomposition products - no data available

**11. Toxicological Information**

**Acute toxicity**

<b>Oral LD50</b>	no data available
<b>Inhalation LC50</b>	no data available
<b>Dermal LD50</b>	no data available
<b>Skin corrosion/irritation</b>	no data available
<b>Serious eye damage</b>	no data available

**Germ cell mutagenicity** no data available

**Carcinogenicity** no component of this product

**Signs and Symptoms of Exposure**

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** no data available

**Persistence and degradability** no data available

**Bioaccumulative potential** no data available

**Mobility in soil** no data available

**PBT and vPvB assessment** no data available

**Other adverse effects** no data available

**13. Disposal Considerations**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

**14. Transport Information**

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

**15. Regulatory Information**

**United States**

**OSHA/HCS Classification:**

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

**U.S. Federal regulations:**

**TSCA (Toxic Substance Control Act):** All components are listed on the TSCA Inventory

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:**

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

**CEPA DSL / CEPA NDSL** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

## **16. Other Information**

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Abbreviations and acronyms:

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

**ACGIH:** American Conference of Governmental Industrial Hygienists

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## VB-3036-6 Phosphotungstic Acid Solution MSDS

### 1. Identification of the Substance/Mixture and Company

#### Identification of the substance or mixture

**Product Name** Phosphotungstic Acid Solution  
**Product number** VB-3036-6  
**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	CAS#
Phosphotungstic Acid	12501-23-4
Water	7732-18-5

### 3. Hazards Identification

#### GHS Classifications

#### Health Hazards

H315-Skin Corrosion/Skin Irritation: 2  
H318-Eye damage/Irritation: 1

#### Physical Hazards:

Not classified

#### Environmental Hazards:

Aquatic acute environmental Hazards: Not classified  
Chronic environmental Hazards: 4

#### Pictograms or Hazard symbols and Hazard statement.

Warning: Causes skin irritation.  
Danger: Causes serious eye damage

#### Precautionary Statement

#### H315

P264-Wash thoroughly after handling.  
P280-Wear protective gloves.  
P302+P352-IF ON SKIN: Wash with plenty of soap and water.  
P332+P313-If skin irritation occurs: Get medical advice/attention.  
P362-Take off contaminated clothing and wash before reuse

#### H318

P280-Wear eye protection and face protection  
P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310-Immediately call a POISON CENTER or doctor/physician.

**DANGER! Causes skin irritation! Causes serious eye damage! Corrosive!**

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling

### 4. First Aid Measures

Eye Exposure:

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Dermal Exposure:**

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

**Oral Exposure:**

If Swallowing seek immediate medical advice.

**Inhalation Exposure:**

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

## 5. Fire Fighting Measures

Firefighters should wear proper protective clothing and self contained breathing apparatus with full piece operated in positive pressure mode to prevent contact with skin and eyes.

**Extinguishing Media:**

Use water spray, dry chemical powder, or appropriate foam.

**Flash Point:** N/A

**NFPA Rating:** (estimated)

Health: 2; Flammability: 0; Instability: 0

## 6. Accidental Release Measures

**Procedure of Personal Precaution:**

Wear protective gear.

**Methods for Cleaning up:**

Absorb with sand, earth or vermiculite. Carefully sweep up and containerize for proper disposal.

## 7. Handling and Storage

Use care when handling. Wash thoroughly after handling. Store capped at room temperature. Keep away from incompatible materials.

## 8. Exposure Controls / Personal Protection

**Engineering Controls:**

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Personal Protective Equipment**

**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.



**Respirators:**

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**9. Physical and Chemical Properties**

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Yellow
<b>Odor:</b>	none
<b>Solubility:</b>	Soluble in water
<b>pH:</b>	1.0-1.4 water.
<b>Vapor Pressure:</b>	2.3 kPa @ 20°C
<b>Vapor Density:</b>	0.62 (Air=1)
<b>Evaporation Rate:</b>	N/A
<b>Viscosity:</b>	N/A
<b>Boiling Point:</b>	100 °C

**10. Stability and Reactivity Data**

<b>Chemical Stability:</b>	Stable under ordinary conditions of use and storage.
<b>Conditions to Avoid:</b>	N/A
<b>Incompatibilities with Other Materials:</b>	N/A
<b>Hazardous Decomposition Products:</b>	N/A
<b>Hazardous Polymerization:</b>	Will not occur.

**11. Toxicological Information****RTECS#:****LD50/LC50:**

CAS# 12501-23-4: N/A

CAS# 51429-74-4: N/A

**Carcinogenicity:**

CAS# 12501-23-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 51429-74-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**12. Ecological Information****Ecotoxicity:**

CAS# 12501-23-4: N/A

CAS# 51429-74-4: N/A

**Environmental:** N/A**Physical:** N/A**Other:** N/A**13. Disposal Considerations****Disposal method:**

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

**14. Transport Information**

**DOT**  
Non-Regulated

## 15. Regulatory Information

### Risk Phrases:

R22 Harmful if swallowed.  
R38 Irritating to skin.  
R41 Risk of serious damage to eyes.

### Safety Phrases:

S26/28 In case of contact with eyes or skin, rinse immediately with plenty of water and seek medical advice.  
S36 Wear suitable protective clothing.

## 16. Other Information

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**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**VB-3036-7 Aniline Blue Solution MSDS**

**1. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Aniline Blue Solution  
**Product number** VB-3036-7  
**Product Description** Kit Component

**Manufacturer/Supplier**

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 29850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

**2. Composition/information on ingredients**

<b>Composition</b>	<b>CAS #</b>
Aniline Blue	28631-66-5
Glacial Acetic Acid	64-19-7
Water	7732-18-5

**3. Hazards Identification**

**GHS Classifications**

**Health Hazards**

H315 -Skin Corrosion/Skin Irritation: 2

H320-Eye damage/Irritation: 2B

H317-Skin Dermal Sensitization-1

**Physical hazards**

H290-Corrosive to Metals: 1

**Environmental Hazards**

**Aquatic acute environmental Hazards:** Not classified

**Chronic environmental Hazards:** Not classified

**Precautionary Statement**

**H315**

P264-Wash thoroughly after handling.

P280-Wear protective gloves.

P302+P352-IF ON SKIN: Wash with plenty of soap and water.

P332+P313-If skin irritation occurs: Get medical advice/attention.

P362-Take off contaminated clothing and wash before reuse

**H320**

P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**P337+P313-If eye irritation persists:** Get medical advice/attention.

**H317**

P272 Contaminated work clothing should not be allowed out of the work place.

P333+P313 IF ON SKIN: Wash with plenty of soap and water.

P363 Wash contaminated clothing before reuse.

**H290**

P234-Keep only in original container.

P390-Absorb spillage to prevent material damage.  
P406-Store in corrosive resistant/container with a resistant inner liner.

#### 4. First Aid Measures

**Eye Exposure:**

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Dermal Exposure:**

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

**Oral Exposure:**

If Swallowing seek immediate medical advice.

**Inhalation Exposure:**

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

#### 5. Fire Fighting Measures

Firefighters should wear proper protective clothing and self contained breathing apparatus with full piece operated in positive pressure mode to prevent contact with skin and eyes.

**Extinguishing Media:**

Use water spray, dry chemical powder, or appropriate foam. Flash Point: N/A

**NFPA Rating:**

Health: 1; Flammability: 0; Instability: 0

#### 6. Accidental Release Measures

**Procedure(s) of Personal Precaution(s):**

Wear protective gear.

**Methods for Cleaning up:**

Absorb with sand, earth or vermiculite. Carefully sweep up and containerize for proper disposal.

#### 7. Handling and Storage

Use care when handling. Wash thoroughly after handling.

Store capped at Room temperature.

Keep away from incompatible materials.

#### 8. Exposure Controls / Personal Protection

**Engineering Controls:**

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Personal Protective Equipment**

**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.

**Respirators:**

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**9. Physical and Chemical Properties**

Physical State:	Liquid
Appearance:	Blue
Odor:	Acetic Acid
pH:	N/A
Vapor Pressure:	N/A
Vapor Density:	N/A
Evaporation Rate:	N/A
Viscosity:	N/A
Boiling Point:	N/A
Freezing/Melting Point:	N/A
Decomposition Temperature:	N/A
Solubility: Soluble. Specific Gravity/Density:	N/A

**10. Stability and Reactivity Data****Chemical Stability:**

Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.

**Conditions to Avoid:**

Heat, freezing.

**Incompatibilities with Other Materials:**

Chromic Acid, ethylene glycol, perchloric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, most metals (except aluminum), carbonates, hydroxides, oxides, and phosphates.

**Hazardous Decomposition Products:** Carbon monoxide, irritating and toxic fumes.

**Hazardous Polymerization:** Will not occur.

**11. Toxicological Information****RTECS#:****LD50/LC50:**

CAS# 64-19-7:

Oral rat LD50: 3310 mg/kg.

Skin: rabbit LD50: 1.06 g/kg

Inhalation mouse LC50: 5620 ppm/1-hr; investigated as a mutagen, reproductive effector.

**Carcinogenicity:**

CAS# 64-19-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 28631-66-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

LD50/LC50: CAS# 28631-66-5 not available

**Epidemiology:** No data available.

**Teratogenicity:** No data available.

**Reproductive Effects:** No data available.

**Neurotoxicity:** Not data available.

**Mutagenicity:** No data available.

## 12. Ecological Information

**Ecotoxicity:**

CAS# 64-19-7.

This material is expected to be slightly toxic to aquatic life. The LC50/96- hour values for fish are between 10 and 100 mg/l.

**Environmental:**

When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.

**Physical:** No information available.

**Other:** No information available.

## 13. Disposal Considerations

**Appropriate method of disposal of substance or preparation:**

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

## 14. Transport Information

**DOT**

Non-Regulated

## 15. Regulatory Information

**Risk Phrases:**

R22 Harmful by inhalation, in contact with skin and if swallowed  
R36/38 Irritating to eyes and skin

**Safety Phrases:**

S20/21 When using do not eat, drink or smoke  
S2 Keep out of the reach of children.  
S 7 Keep container tightly closed.  
S 9 Keep container in a well-ventilated place

## 16. Other Information

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**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## VB-3036-8 1% Acetic Acid Solution MSDS

### 1. Identification of the Substance/Mixture and Company

#### Identification of the substance or mixture

**Product Name** Acetic Acid Solution  
**Product number** VB-3036-8  
**Product Description** Kit Component

#### Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 29850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

### 2. Composition/information on ingredients

#### **Composition:**

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

#### **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

<b>Flammability of the Product:</b>	N/A
<b>Auto-Ignition Temperature:</b>	N/A
<b>Flash Points:</b>	N/A
<b>Flammable Limits:</b>	N/A
<b>Products of Combustion:</b>	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 phosphorus 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/m<sup>3</sup>) [Australia] TWA: 10 STEL: 15 (ppm) from NIOSH TWA: 25 STEL: 37 (mg/m<sup>3</sup>) from NIOSH TWA: 10 STEL: 15 (ppm) [Canada] TWA: 26 STEL: 39 (mg/m<sup>3</sup>) [Canada] TWA: 25 STEL: 37 (mg/m<sup>3</sup>) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 25 (mg/m<sup>3</sup>) from OSHA (PEL) [United States]<sup>3</sup> Consult local authorities for acceptable exposure limits.

<b>9. Physical and Chemical Properties</b>
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<b>Physical state and appearance:</b>	Liquid.
<b>Odor:</b>	Vinegar-like. Sour
<b>Taste:</b>	Vinegar-like. Sour
<b>Molecular Weight:</b>	N/A
<b>Color:</b>	N/A
<b>pH (1% soln/water):</b>	5 [Acidic.]
<b>Boiling Point:</b>	The lowest known value is 100°C (212°F) (Water).
<b>Melting Point:</b>	May start to solidify at 16.6°C (61.9°F) , (Acidic acid)
<b>Critical Temperature:</b>	The lowest known value is 321.67°C, 611°F (Acetic acid)
<b>Specific Gravity:</b>	Weighted average: 1 (Water = 1)
<b>Vapor Pressure:</b>	The highest known value is 2.3 kPa (@ 20°C) (Water).
<b>Vapor Density:</b>	The highest known value is 2.07 (Air = 1) (Acetic acid).
<b>Volatility:</b>	N/A
<b>Odor Threshold:</b>	The highest known value is 0.48 ppm (Acetic acid)
<b>Water/Oil Dist. Coeff.:</b>	The product is more soluble in water.
<b>Ionicity (in Water):</b>	N/A
<b>Dispersion Properties:</b>	Partially dispersed in methanol, diethyl ether, n-octanol.
<b>Solubility:</b>	Easily soluble in water, methanol, acetone, n-octanol.

<b>10. Stability and Reactivity Data</b>
--

**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.

<b>11. Toxicological Information</b>
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**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**

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**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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