VitroVivo Biotech
Make Tissues, Cells, Genes and Molecules Visible

**Material Safety Datasheet (MSDS)**

**Revision Date** 05-April-2021 **Version 1**

**Kit Name:** VitroView™ COX/SDH Double Histochemistry Stain Kit (For 50~100 slides)

**SKU#:** VB-3022

**Components**

| SKU# | Reagent | Size |
|---|---|---|
| VB-3022-1 | COX A Solution | 1ml×5 |
| VB-3022-2 | COX B Solution | 1ml×5 |
| VB-3022-3 | Succinate solution | 0.3ml×5 |
| VB-3022-4 | Yellow SDH Incubation Medium | 1.5 ml×5 |
| VB-3022-5 | COX Inhibitor Solution | 1ml×2 |
| VB-3022-6 | SDH Inhibitor Solution | 1ml×2 |

## 1. Identification of the substance/mixture and of the company/undertaking

| | |
|---|---|
| **Product Name** | COX A Solution |
| **SKU#** | VB-3022-1 |
| **Product Description** | Kit Component |
| **Manufacturer/Supplier** | VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850 |
| **Tel/fax Number** | Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208 |
| **Email** | info@vitrovivo.com |

## 2. Hazards identification

**Classification of the substance or mixture**

**GHS Classification in accordance with 29CFR1910 (OSHAHCS)**

Acute toxicity, Oral (Category 4), H302 Eye
irritation (Category2A),H319
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category1B),H350

ForthefulltextoftheH-StatementsmentionedinthisSection,seeSection16.

**GHS Label elements, including precautionary statements**

Pictogram

Signal word — Danger

Hazard statement(s)

| | |
|---|---|
| H302 | Harmful if swallowed. |
| H319 | Causes serious eye irritation. |
| H341 | Suspected of causing genetic effects. |
| H350 | May cause cancer. |

Precautionary statement(s)

| | |
|---|---|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P264 | Wash skin thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| 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. |
| P305+P351+P338 | If IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308+P313 | If exposed or concerned: Get medical advice/ attention. |
| P337+P313 | If eye irritation persists: Get medical advice/ attention. |

P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

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

## 3. Composition/information on ingredients

### 3.1 Substances

Synonyms : DAB
3,3′,4,4′-Biphenyltetramine3,3′,4,4′-Tetraaminobiphenyl

| | | |
|---|---|---|
| Formula | : | $C_{12}H_{14}N_4$ |
| Molecular weight | : | 214.27g/mol |
| CAS-No. | : | 91-95-2 |
| EC-No. | : | 202-110-6 |
| Index-No. | : | 612-239-00-3 |

| Component | Classification | Concentration |
|---|---|---|
| **Biphenyl-3,3',4,4'-tetrayltetraamine** | | |
| | Acute Tox. 4; Eye Irrit.2A; Muta. 2; Carc. 1B;H302,H319,H341,H350 | <=0.1% |

## 4 First aid measures Description of first aid measures General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of Dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15minutes and consult a physician.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

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

## 5. Fire fighting measures

**Extinguishing media Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special hazards arising from the substance or mixture**
Carbon oxides, Nitrogen oxides (NOx) Combustible.

**Adviceforfirefighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**Further information**
No data available

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section8.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**Reference to other sections**
For disposal see section13.

## 7. Handling and storage

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

**Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.

Light sensitive.
Storage class (TRGS510):6.1C: Combustible, acute toxic Cat.3/toxic compounds or compounds which causing chronic effects

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

## 8. Exposure controls/personal protection

**Control parameters**

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

**Exposure controls**

**Appropriate engineering controls**
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**
Safety glasses with side-shields conforming to EN166U see equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).

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

**Body Protection**

Complete suit protecting against chemicals, the type of protective equipment mustbe selected according to the concentration and amount of the dangerous substance at the specific work place.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN143) respirator cartridge sasa backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

- Appearance form: liquid
- Odor: No data available
- Odor Threshold: No data available
- pH: No data available
- Melting point/freezing point and initial boiling point and boiling range Melting point/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
- Relative density: No data available
- Water solubility: No data available
- Partition coefficient: No data available
- Auto ignition temperature and Decomposition temperature: No data available
- Viscosity: No data available
- Explosive properties: No data available
- Oxidizing properties: No data available

**Other safety information**
No data available

## 10. Stability and reactivity

**Reactivity**
No data available

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
No data available

**Conditions to avoid:** Light.

**Incompatible materials**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)

Other decomposition products - No data available
In the event of fire: see section 5

## 11. Toxicological information

**Information on toxicological effects Acute toxicity**
LD50 Oral - Mouse - 1,834 mg/kg
Inhalation: No data available Dermal:

**Skin corrosion/irritation**
No data available

**Serious eye damage/eye irritation**
No data available

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
In vitro tests showed mutagenic effects Rat
Liver Unscheduled DNA synthesis
Mouse Cytogenetic analysis

**Carcinogenicity**
Presumed to have carcinogenic potential for humans

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.

NTP:No component of this product presents 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**
RTECS: DV8750000

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

## 12. Ecological information

**Toxicity**
No data available

**Persistence and degradability**
No data available

**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

**Other adverse effects**
No data available

## 13. Disposal considerations

**Waste treatment methods 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 after burner 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 SA

**RA302 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 (DeMinimis) reporting levels established by SARA Title III, Section313.

**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.

**Pennsylvania Right To Know Components**
Biphenyl-3,3',4,4'-tetrayltetraamine
CAS-No.91-95-2
**New Jersey Right To Know Components**
Biphenyl-3,3',4,4'-tetrayltetraamine
CAS-No.91-95-2

## 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-3022-2 Material Safety Datasheet (MSDS)**
Revision Date 05-April-2021 Version 1

## 1. Identification of the substance/mixture and of the company/undertaking

| | |
|---|---|
| **Product Name** | COX B Solution |
| **SKU#** | VB-3022-2 |
| **Product Description** | Kit Component |
| **Manufacturer/Supplier** | VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850 |
| **Tel/fax Number** | Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208 |
| **Email** | info@vitrovivo.com |

## 2. Hazards identification

**Classification of the substance or mixture**
Not a hazardous substance or mixture.
**GHS Label elements, including precautionary statements**
Not a hazardous substance or mixture.
**Hazards not otherwise classified (HNOC) or not covered by GHS** - none

## 3. Composition/information non ingredients

**Substances**
**Cytochrome c:**
Molecular weight: 12,270 g/mol; CAS-No. : 9007-43-6: EC-No. : 232-700-9
**Catalase**
Synonyms : H2O2:H2O2 oxidoreductase
CAS-No. : 9001-05-2
EC-No. : 232-577-1

## 4. First aid measures

**Description of first aid measures**
**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration.
**In case of skin contact**
Wash off with soap and plenty of water.
**In case of eye contact**
Flush eyes with water as a precaution.
**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water.
**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**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use water spray,

Alcohol-resistant foam, dry chemical or carbon dioxide.

**Special hazards arising from the substance or mixture**

Nature of decomposition products not known.

**Advice for fire fighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**Further information**
No data available

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

**Environmental precautions**
Do not let product enter drains.

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

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**Reference to other sections**
For disposal see section 13.

## 7. Handling and storage

**Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

**Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS510):13: Non 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**
**Components with workplace control parameters**
Contains no substances with occupational exposure limit values.
**Exposure controls**
**Appropriate engineering 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**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without

touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**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 work place.

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Do not let product enter drains.

## 9. Physical and chemical properties

Information on basic physical and chemical properties

- Appearance: Form: Liquid; Color: yellow
- Odor: odorless
- Odor Threshold: No data available
- pH: No data available
- Melting Point /freezing point: No data available
- Initial boiling point and boiling range: No data available
- Flash point: No data available
- Evaporation rate: No data available
- Flammability: Upper/lower flammability or explosive elimits. The product is not flammable.
- Vapor pressure: No data available
- Vapor density: No data available
- Relative density: No data available
- Partition coefficient: No data available
- Auto-ignition temperature: No data available
- Decomposition temperature: No data available
- Viscosity: No data available
- Explosive properties: No data available
- Oxidizing properties: No data available
- Bulk density: No data available

## 10. Stability and reactivity

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions.
**Possibility of hazardous reactions:** No data available

**Conditions to avoid:** No data available

**Incompatible materials:** Strong oxidizing agents.

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Nature of decomposition
Other decomposition products-No data available
In the event of fire: see section 5

## 11. Toxicological information

**Acute toxicity**

No data available
Inhalation: No data available
Dermal: No data available
No data available
**Skin corrosion/irritation**
No data available
**Serious eye damage/eye irritation**
No data available
**Respiratory or skin sensitisation**
No data available
**Germ cell mutagenicity**
No data available
**Carcinogenicity**
**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH..
**NTP:** No component 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 presents 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** RTECS: FI4378000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12. Ecological information

**Toxicity**
No data available
**Persistence and degradability**
No data available
**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
**Other adverse effects**
No data available

## 13. Disposal considerations

**Waste treatment methods**
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a Licensed professional wasted is postal service to dispose of this material.
**Contaminated packaging**
Dispose of as unused product.

## 14. Transport

DOT (US)
Not dangerous goods
IMDG

Not dangerous goods
IATA
Not dangerous goods

## 15. Regulatory information

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

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

**SARA311/312 Hazards**

No SARA Hazards

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

**Pennsylvania Right to Know Components**

Catalase CAS-No. 9001-05-2
Cytochrome c: CAS-No. : 9007-43-6:

## 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-3022-3 Material Safety Datasheet (MSDS)**
Revision Date 05-April-2021 Version 1

## 1. Identification of the substance/mixture and of the company/undertaking

| | |
|---|---|
| **Product Name** | Succinate solution |
| **SKU#** | VB-3022-3 |
| **Product Description** | Kit Component |
| **Manufacturer/Supplier** | VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850 |
| **Tel/fax Number** | Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208 |
| **Email** | info@vitrovivo.com |

## 2. Hazards identification

**Classification of the substance or mixture**
Not a hazardous substance or mixture.
**GHS Label elements, including precautionary statements**
Not a hazardous substance or mixture.
**Hazards not otherwise classified (HNOC) or not covered by GHS** - none

## 3. Composition/information non ingredients

**Substances**
**Synonyms :** Succinic aciddisodium salt
**Formula :** C4H4Na2O4
**Molecular weight:** 162.05 g/mol
**CAS-No. :** 150-90-3
**EC-No. :** 205-778-7
**No components need to be disclosed according to the applicable regulations.**

## 4. First aid measures

**Description of first aid measures**
**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration.
**In case of skin contact**
Wash off with soap and plenty of water.
**In case of eye contact**
Flush eyes with water as a precaution.
**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water.
**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**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use water spray, Alcohol-resistant foam, dry chemical or carbon dioxide.

**Special hazards arising from the substance or mixture**

Nature of decomposition products not known.

**Advice for fire fighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**Further information**
No data available

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

**Environmental precautions**
Do not let product enter drains.

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

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**Reference to other sections**
For disposal see section 13.

## 7. Handling and storage

**Precautions for safe handling**

Provide appropriate exhaust ventilation at places.

For precautions see section 2.2.

**Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS510):13: Non 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**
**Components with workplace control parameters**
Contains no substances with occupational exposure limit values.
**Exposure controls**
**Appropriate engineering 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**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**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 work place.

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Do not let product enter drains.

## 9. Physical and chemical properties

Information on basic physical and chemical properties

a) Appearance: Form: Liquid; Color: colorless
b) Odor: odorless
c) Odor Threshold: No data available
d) pH: No data available
e) Melting Point /freezing point: No data available
f) Initial boiling point and boiling range: No data available
g) Flash point: No data available
h) Evaporation rate: No data available
i) Flammability: Upper/lower flammability or explosive elimits. The product is not flammable.
j) Vapor pressure: No data available
k) Vapor density: No data available
l) Relative density: No data available
m) Partition coefficient: No data available
n) Auto-ignition temperature: No data available
o) Decomposition temperature: No data available
p) Viscosity: No data available
q) Explosive properties: No data available
r) Oxidizing properties: No data available
s) Bulk density: No data available

## 10. Stability and reactivity

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions.
**Possibility of hazardous reactions:** No data available

**Conditions to avoid:** No data available

**Incompatible materials:** Strong oxidizing agents, Strong acids

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Nature of decomposition
Other decomposition products-No data available
In the event of fire: see section 5

## 11. Toxicological information

**Acute toxicity**
No data available
Inhalation: No data available
Dermal: No data available
No data available
**Skin corrosion/irritation**
No data available
**Serious eye damage/eye irritation**
No data available
**Respiratory or skin sensitisation**
No data available
**Germ cell mutagenicity**
No data available
**Carcinogenicity**
**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH..
**NTP:** No component 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 presents 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** RTECS: WM7751000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12. Ecological information

**Toxicity**
No data available
**Persistence and degradability**
No data available
**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
**Other adverse effects**
No data available

## 13. Disposal considerations

**Waste treatment methods**
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a Licensed professional wasted is postal service to dispose of this material.
**Contaminated packaging**
Dispose of as unused product.

## 14. Transport

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods
IATA
Not dangerous goods

## 15. Regulatory information

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

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

**SARA311/312 Hazards**

No SARA Hazards

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

**Pennsylvania Right to Know Components**

Disodium succinate, CAS-No. 150-90-3

## 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


**Material Safety Datasheet**

Revision Date 05-April-2021 Version 1

## 1. Identification of the substance/mixture and of the company/undertaking

| | |
|---|---|
| **Product Name** | Yellow SDH Incubation Medium |
| **SKU#** | VB-3022-4 |
| **Product Description** | Kit Component |
| **Manufacturer/Supplier** | VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850 |
| **Tel/fax Number** | Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208 |
| **Email** | info@vitrovivo.com |

## 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with 29 CFR 1910.1200**

| | | |
|---|---|---|
| Acute toxicity (Oral) | : | Category 4 |
| Skin irritation | : | Category 2 |
| Eye irritation | : | Category 2A |
| Specific target organ syste-mic toxicity-single exposure | : | Category 3 (Respiratory system) |

**GHSlabelelements**

Hazardpictograms :

SignalWord : Warning

Hazard Statements : H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation. H335
May cause respiratory irritation.

Precautionary Statements :

**Prevention:**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product. P271 Use only outdoor sorinawell-ventilated area.
P280 Wear protective gloves/eye protection/face protection.

**Response:**

P301+P312 +P330 IFSWALLOWED:CallaPOISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P304 + P340 + P312 IF INHALED: Remove person to fresh airand keep comfortable for breathing. Call a POISONCENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362Takeoff contaminated clothing and wash before reuse.

**Storage:**

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

## 3. COMPOSITION/ INFORMATIONON INGREDIENTS

| | | |
|---|---|---|
| Substance/ Mixture | : | Substance |
| Substancename | : | 4-Nitrobluetetrazolium chloride(NBT) |
| CAS-No. | : | 298-83-9 |

**Components**

| Chemical name | CAS-No. | Concentration(% w/w) |
|---|---|---|
| 2H-Tetrazolium, 2,2'-(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis[3-(4-nitrophenyl)-5-phenyl-,chloride(1:2) | 298-83-9 | <0.15 |

Actual concentration is with held as a trade secret

## 4. FIRST AID MEASURES

**General advice** : Move out of dangerous area.

Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

**If inhaled** : Move to fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

**In case of skin contact** : If skin irritation persists, call a physician. If on skin, rinse well with water.
If on clothes, remove clothes.

**In case of eye contact** : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

**If swallowed** : Clean mouth with water and drink after wards plenty of water. Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

**Most important symptoms and effects, both acute and delayed** : No information available.
Harmful if swallowed.
Causes skin irritation. Causes serious eye irritation.
May cause respiratory irritation.

| | | |
|---|---|---|
| **Notes to physician** | : | The first aid procedure should be established in consultation With the doctor responsible for industrial medicine.<br>The first aid procedure should be established in consultation with the doctor responsible for industrial medicine. |

## 5. FIRE-FIGHTING MEASURES

| | | |
|---|---|---|
| Suitable extinguishing media | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing Media | : | High volume water jet |
| Specific hazards during firefighting | : | No information available. |
| Hazardous combustion products | : | No hazardous combustion products are known |
| Further information | : | Standard procedure for chemical fires.<br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Special protective equipment for fire-fighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |

## 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.<br>Avoid dust formation.<br>Avoid breathing dust. |
| Environmental precautions | : | Prevent further leakage or spillage if safe to do so. |
| Methods and materials for containment and cleaning up | : | Keep in suitable, closed containers for disposal. |

## 7. HANDLINGANDSTORAGE

| | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Avoid dust formation.<br>Provide appropriate exhaust ventilation at places where dust is formed. |
| Advice on safe handling | : | Avoid formation of respirable particles. Do not breathe vapors/dust.<br>Avoid exposure obtain special instructions before use. Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Provide sufficient air exchange and/or exhaust in work rooms.<br>Dispose of rinse water in accordance with local and national regulations. |
| Conditions for safe storage | : | Keep container tightly closed in a dry and well-ventilated place.<br>Observe label precautions.<br>Electrical installations /working materials must comply with the technological safety standards. |

| | | |
|---|---|---|
| Further information on storage conditions | : | See label, package insert or internal guidelines |
| Further information on storage stability | : | No decomposition if stored and applied as directed. |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

| | | |
|---|---|---|
| Respiratory protection | : | In the case of dust or aerosol formation use respirator with an Approved filter. |
| | | Effective dust mask |

Hand protection

| | | |
|---|---|---|
| Remarks | : | Wear appropriate protective gloves to prevent skin contact.<br>Replace to nor-punctured gloves promptly. |
| Eye protection | : | Eye wash bottle with pure water<br>Tightly fitting safety goggles<br>Wear face-shield and protective suit for abnormal processing problems. |
| Skin and body protection | : | Choose body protection according to the amount and concentration of the dangerous substance at the workplace. |
| Hygiene measures | : | When using do not eat or drink.<br>When using do not smoke.<br>Wash hands before breaks and at the end of workday. |

## SECTION9.PHYSICALANDCHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | Liquid |
| Color | : | yellow |
| Odor | : | none |
| Odor Threshold | : | Not applicable |
| pH | : | Not applicable |
| Melting point/range | : | 197 °C/197 °C |
| Boiling point/boiling range | : | No data available |
| Flashpoint | : | Does not flash |
| Evaporationrate | : | No data available |
| Flammability(solid, gas) | : | Sustains combustion |
| Flammability(liquids) | : | Sustains combustion |

| | | |
|---|---|---|
| Self-ignition | : | No data available |
| Upper explosion limit/Upper Flammability limit | : | No data available |
| Lower explosion limit/Lower Flammability limit | : | No data available |
| Vapor pressure | : | No data available |
| Relativevapordensity | : | Not applicable |
| Relative density | : | No data available |
| Partition coefficient: ncoctanol/water | : | Remarks: No data available |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | No data available |

Viscosity

| | | |
|---|---|---|
| Viscosity,dynamic | : | Not applicable |
| Viscosity,kinematic | : | Not applicable |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight | : | 817.64g/mol |

## 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | No dangerous reaction known under conditions of normal use. Stable |
| Chemicalstability | : | Stable under normal conditions. |
| Possibility of hazardous reactions | : | Reacts with the following substances:<br>Strong oxidizing agents<br>Strong acids and strong bases<br>No decomposition if stored and applied as directed. |
| Conditionsto avoid | : | Heat.<br>Exposure to light. |
| Incompatible materials | : | Strong oxidizing agents Strong acids and strong bases |
| Hazardous decomposition products | : | In case of fire hazardous decomposition products may be produced such as:<br>Nitrogen oxides (NOx)<br>Carbon oxides |

## 11. TOXICOLOGICAL INFORMATION

Harmful if swallowed.

**Components:**

**2H-Tetrazolium,2,2'-(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis[3-(4-nitrophenyl)-5-phenyl-,chloride(1:2):**

| | | |
|---|---|---|
| Acute oral toxicity | : | Assessment: The component/mixture is moderately toxic after Single ingestion. |
| Acute inhalation toxicity | : | Target Organs: Respiratory system<br>Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. |

**Skin corrosion/irritation**

Causes skin irritation.

| | | |
|---|---|---|
| Remarks | : | May cause skin irritation in susceptible persons. |
| Result | : | Irritating to skin. |

**Serious eye damage/eye irritation**

Causes serious eye irritation.

| | | |
|---|---|---|
| Remarks | : | May cause irreversible eye damage. |
| Result | : | Irritating to eyes. |

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

| | | |
|---|---|---|
| Assessment | : | Did not cause sensitization on laboratory animals. |

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

Not classified based on available information.

**IARC** No ingredient of this product present at levels greater than or equal to0.1% is Identified as probable, possible or confirmed human carcinogen by IARC.

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

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

**Reproductive toxicity**

Not classified based on available information.

**STOT-single exposure**

May cause respiratory irritation.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicology Assessment**

| | | |
|---|---|---|
| Acute aquatic toxicity | : | This product has no known eco toxicological effects. |
| Chronic aquatic toxicity | : | This product has no known eco toxicological effects. |
| Toxicity Data on Soil | : | Not expected to adsorb on soil. |
| Other organisms relevant to the environment | : | No data available |

**Persistence and degradability**

No data available

**Bioaccumulative potential**

**Partition coefficient: n-**

**ctanol/water**

**Remarks: No data available**

Mobility in soil

No data available

**Other adverse effects**

**Ozone-Depletion Potential :**
**Regulation:** 40CFR Protection of Environment; Part82Pro-tection of Stratospheric Ozone - CAA Section 602 Class I Substances
**Remarks:** This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602(40CFR 82, Subpt. A,App.A+B).

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

| | | |
|---|---|---|
| Waste from residues | : | Do not contaminate ponds, waterways or ditches with chemical or used container.<br>Send to a licensed waste management company.<br>Can be disposed as waste water, when incompliance with local regulations. |

| | | |
|---|---|---|
| Contaminated packaging | : | Empty remaining contents.<br>Dispose of as unused product.<br>Empty containers should be taken to an approved waste handling site for recycling or disposal.<br>Do not re-use empty containers. |

## 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**
Not regulated as a dangerous good

**IATA-DGR**
Not regulated as a dangerous good

**IMDG-Code**
Not regulated as a dangerous good

**Transport in bulk according to AnnexII of MARPOL 73/78 and the IBCCode**

Not applicable

**Domestic regulation**

**49CFR**
Not regulated as a dangerous good

## 15. REGULATORY INFORMATION

**EPCRA-Emergency Planning and Community Right-to-Know**

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLARQ.

**SARA304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHSRQ.

**SARA302 Extremely Hazardous Substances Threshold Planning Quantity**

| Components | CAS-No. | Component TPQ(lbs) |
|---|---|---|

| | | |
|---|---|---|
| **SARA311/312 Hazards** | : | Acute toxicity (any route of exposure)<br>Skin corrosion or irritation<br>Serious eye damage or eye irritation<br>Specific target organ toxicity (single or repeated exposure) |

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40CFR82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40CFR61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112 (r) for Accidental Release Prevention (40CFR68.130, Subpart F).
This product does not contain any chemicals listed under the U.S.Clean Air Act Section 111 SOCMI Inter mediate or Final VOC's (40CFR60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. Clean Water Act, Section 311, and Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S.Clean Water Act, Section 311, and Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**US State Regulations**

**Massachusetts Right To Know**

**Pennsylvania Right To Know**

| | |
|---|---|
| 2H-Tetrazolium,2,2'-(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis[3-(4-nitrophenyl)-5-phenyl-,chloride(1:2) | 298-83-9 |

**Maine Chemicals of High ConcernVermont**

**Chemicals of High Concern Washington**

**Chemicals of High Concern**

**The ingredients of this product are reported in the following inventories:**
**DSL:** All components of this product are on the Canadian DSL
**AICS**: On the inventory,or incompliance with the inventory
**NZIoC**: On the inventory, or incompliance with the inventory
**ENCS**: Not incompliance with the inventory
**ISHL**: Not incompliance with the inventory
**KECI**: On the inventory,or in compliance with the inventory
**PICCS**: Not incompliance with the inventory
**IECSC**: Not incompliance with the inventory
**TCSI**: On the inventory,or in compliance with the inventory
**TSCA**: All substances listed as active on the TSCA inventory

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA12(b) export notification requirements.

## 16. OTHERINFORMATION

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

**Material Safety Datasheet**

**Revision Date** 05-April-2021 **Version 1**

## 1. PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Product Name** | COX Inhibitor Solution |
| **SKU#** | VB-3022-5 |
| **Product Description** | Kit Component |
| **Manufacturer/Supplier** | VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850 |
| **Tel/fax Number** | Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208 |
| **Email** | info@vitrovivo.com |

## 2. HAZARDS IDENTIFICATION

**GHS - Classification**

| | |
|---|---|
| Acute oral toxicity | Category 3 |
| Acute dermal toxicity | Category 2 |
| Acute aquatic toxicity | Category 1 |
| Chronic aquatic toxicity | Category 1 |

**GHS Label elements, including precautionary statements**

**Signal Word**
Danger

**Hazard statements**
H301 - Toxic if swallowed
H310 - Fatal in
contact with skin
H400 - Very toxic
to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

**Precautionary Statements - EU (§28, 1272/2008)**
P262 - Do not get in eyes, on skin, or on clothing
P280 - Wear protective gloves/ eye protection/ face protection
P264 - Wash face, hands and any exposed skin thoroughly
after handling P270 - Do not eat, drink or smoke when using
this product
P363 - Wash contaminated clothing before reuse
P361 - Remove/Take off immediately all contaminated clothing
P302 + P350 - IF ON SKIN: Gently wash with plenty of
soap and water P310 - Immediately call a POISON
CENTER or doctor/ physician P273 - Avoid release to
theenvironment
P391 -
Collect
spillage
P405 -
Store
locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

No information available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Substances**

| Chemical Name | CAS-No | Weight % | Classification (Reg. 1272/2008) |
|---|---|---|---|
| Sodium azide | 26628-22-8 | <0.02 | Acute Tox. 2 (H300) Acute Tox. 1 (H310) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) (EUH032) |

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

## 4. FIRST AID MEASURES

**General advice**
When symptoms persist or in all cases of doubt seek medical advice**.**
**Eye contact**
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.
**Skin contact**
Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before use.
**Inhalation** Move to fresh air.
**Ingestion** Rinse mouth. Do not induce vomiting without medical advice. Consult a physician.
**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**

Wear self-contained breathing apparatus and protective suit.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions** Use personal protective equipment. 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. Cover powder spill with plastic

sheet ortarp to minimize spreading. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up**

Cover liquid spill with sand, earth or other noncombustible absorbent material. Cover powder spill with plastic sheet or tarp to minimize spreading. Sweep up and shovel into suitable containers for disposal.

## 7. HANDLING AND STORAGE

**Advice on safe handling** Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Removeand 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 child.

## 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 | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Sodium azide 26628-22-8 | Ceiling: 0.29 mg/m$^3$ NaN3 Ceiling: 0.11 ppm Hydrazoic acid vapor | (vacated) S* (vacated) Ceiling: 0.1 ppm HN3 (vacated) Ceiling: 0.3 mg/m$^3$ NaN3 | Ceiling: 0.1 ppm HN3 Ceiling: 0.3 mg/m$^3$ NaN3 |

*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.2d962 (11th Cir., 1992).

**Engineering measures** Showers Eye washes stations
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** When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work
- Area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and Animal feeding stuffs.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**: liquid.
**Odor:** No information available.
**Odor Threshold** No information available
**pH**: No information available
**Flash point**: No information available
**Auto ignition temperature** No information available
**Decomposition temperature** No information available
**Meltingpoint/range** No information available
**Explosion limits** No information available
**Boiling point/boiling range** No information available
**Flammability Limits in Air** No information available
**Specific Gravity No** data available
**Evaporation rate** No information available
**Vapor density** No data available
**Vapor Pressure** @20°C (kPa) No information available
**VOC Content(%)** Not applicable

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under recommended storage conditions.
**Incompatible products** None known based on information supplied.
**Conditions to avoid** None known based on information supplied.
**Hazardous decomposition products** None known based on information supplied.
Hazardous polymerization Hazardous polymerization does not occur.

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Product Information** Product is toxic by ingestion

**Skincontact** Avoid contact with skin Very toxic in contact with skin

**Ingestion** Toxic ifswallowed

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Sodium azide | 27 mg/kg ( Rat ) | 50 mg/kg ( Rat ) 20 mg/kg ( Rabbit) | |

**Chronic toxicity**

**Chronic toxicity** Prolonged or repeated exposure increases the risk Possible risks of irreversible effects

**Target Organ Effects** None known.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

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

| Chemical Name | Toxicity to algae | Toxicity to fish | Toxicity to microorganisms | Toxicity to daphnia and other aquaticinvertebrates |
|---|---|---|---|---|
| Sodium azide | | 0.8: 96 h Oncorhynchus mykiss mg/L LC50 0.7: 96 h Lepomis macrochirus mg/L LC50 5.46: 96 h Pimephalespromelas mg/L LC50 flow-through | | |

## 13. DISPOSAL CONSIDERATIONS

**Dispose of in accordance with local regulations.** Do not re-use empty containers**.**

**Waste disposal methods contaminated packaging :**Dispose of in accordance with local regulations. Do not re-use empty containers

| Chemical Name | RCRA - Halogenated Organic Compounds | RCRA - P Series Wastes | RCRA - F Series Wastes | RCRA - K Series Wastes |
|---|---|---|---|---|
| Sodium azide - 26628-22-8 | | P105 | | |

This product contains one or more substances that are listed with the State of California as a hazardous waste.

| Chemical Name | California Hazardous Waste Status |
|---|---|
| Sodium azide | Ignitable Reactive |

## 14. TRANSPORT INFORMATION

**DOT**

Proper shipping name Hazard class
Excepted Quantity sodium azide6.1
**UN/IDNo** UN1687
Packinggroup II
IATA Excepted Quantity
**UN/IDNo** UN1687
Proper shipping name Sodium azide
Hazard class 6.1
Packing group II
**ADR** Excepted Quantity
Proper shipping name Sodium azide

Hazard class 6.1
UN/IDNo UN1687
Packing group II

## 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 contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

| Chemical Name | CAS-No | Weight % | SARA 313 - Threshold Values % |
|---|---|---|---|
| Sodium azide | 26628-22-8 | <0.02 | 1.0 |

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| **AcuteHealth Hazard** | yes |
| **ChronicHealth Hazard** | yes |
| **FireHazard** | no |
| **Sudden Release ofPressure Hazard** | no |
| **ReactiveHazard** | 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.

| Chemical Name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | RQ |
|---|---|---|---|
| Sodium azide | 1000 lb | 1000 lb | RQ 1000 lb final RQ RQ 454 kg final RQ |

### U.S. State Regulations

**California Proposition65**
This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

| Chemical Name | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| Sodium azide | X | X | X | | X |

**International Regulations**

| | |
|---|---|
| **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

**Full text of H-Statements referred to under sections 2 and 3**
H300 + H310 - Fatal if swallowed or in contact with skin H400 - Very toxic to aquatic life H410 - Very toxic to aquatic life with long lasting effects

**Hazard statements**
H301 - Toxic if swallowed
H310 - Fatal in contact with skin H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

**VB-3022-6 Material Safety Datasheet (MSDS)**
Revision Date 05-April-2021 Version 1

## 1. Identification of the substance/mixture and of the company/undertaking

| | |
|---|---|
| **Product Name** | SDH Inhibitor Solution |
| **SKU#** | VB-3022-6 |
| **Product Description** | Kit Component |
| **Manufacturer/Supplier** | VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850 |
| **Tel/fax Number** | Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208 |
| **Email** | info@vitrovivo.com |

## 2 Hazards identification

**Classification of the substance or mixture**

**GHS Classification in accordance with 29CFR1910 (OSHAHCS)**

Serious eye damage (Category1), H318

For the full text of the H-Statements mentioned in this Section, see Section16.

**GHS Label elements, including precautionary statements**

Pictogram 

Signal word Danger Hazard statement(s)

H318 Causes serious eye damage.

Precautionary statement(s)

P280 Wear eye protection/face protection

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.

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

## 3 Composition/information non ingredients

**3.1 Substances**

| | |
|---|---|
| Synonyms | :Propanedioicacid |
| Formula | :$C_3H_4O_4$ |
| Molecular weight | :104.06g/mol |
| CAS-No. | :141-82-2 |
| EC-No. | :205-503-0 |

| Component | Classification | Concentration |
|---|---|---|
| **Malonic acid** | | |
| | Eye Dam.1;H318 | <=0.1% |

## 4 First aid measures

**Description of first aid measures General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labeling (seesection 2.2) and/orin section 11

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

## 5 Fire fighting measures

**Extinguishing media Suitable**

**Extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use water spray,
Alcohol-resistant foam, dry chemical or carbon dioxide.

**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.

**Advice for fire fighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**Further information**
No data available

## 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

**Environmental precautions**
Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**Reference to other sections**
For disposal see section 13.

## 7 Handling and storage

**Precautions for safe handling**
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

**Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS510):13: Non 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**
**Components with workplace control parameters**
Contains no substances with occupational exposure limit values.
**Exposure controls**
**Appropriate engineering 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**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**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 work place.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN143) respirator cartridge sasa backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).

**Control of environmental exposure**
Do not let product enter drains.

## 9 Physical and chemical properties

Information on basic physical and chemical properties

t) Appearance: Form: Liquid; Color: colorless
u) Odor: odorless
v) Odor Threshold: No data available
w) pH: No data available

x) Melting Point /freezing point: No data available
y) Initial boiling point and boiling range: No data available
z) Flash point: No data available
aa) Evaporation rate: No data available
bb) Flammability: Upper/lower flammability or explosive elimits. The product is not flammable.
cc) Vapor pressure: No data available
dd) Vapor density: No data available
ee) Relative density: No data available
ff) Partition coefficient: No data available
gg) Auto-ignition temperature: No data available
hh) Decomposition temperature: No data available
ii) Viscosity: No data available
jj) Explosive properties: No data available
kk) Oxidizing properties: No data available
ll) Bulk density: No data available

## 10 Stability and reactivity

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions.
**Possibility of hazardous reactions:** No data available

**Conditions to avoid:** No data available

**Incompatible materials:** Bases, Oxidizing agents, Reducing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products-No data available
In the event of fire: see section 5

## 11 Toxicological information

**Information on toxicological effects Acute toxicity**
LD50 Oral-Rat-male -3,250mg/kg
(OECD Test Guideline 401)
No data available

**Skin corrosion/irritation**
Skin- Rabbit
Result: No skin irritation - 4
hRemarks:(ECHA)

**Serious eye damage/eye irritation**
Eyes- Human
Result: Causes serious eye damage. (OECD Test Guideline 492)

**Respiratory or skin sensitization**

Local lymph node assay (LLNA) – Mouse Result: negative
(OECD Test Guideline 429)

**Germ cell mutagenicity**
Ames test
S. typhimurium Result: negative
(National Toxicology Program)

Rat - male - Liver cells Result: negative (ECHA)

**Carcinogenicity**

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.

NTP: No component 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 to this product presents 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**
Acute inhalation toxicity - Possible damages:, mucosal irritations

**Specific target organ toxicity - repeated exposureAspiration hazard**

**Additional Information**

Repeated dose toxicity - Rat - male - Oral - 52 Days - No observed adverse effect level - 100mg/kgRTECS:OO0175000

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties cannot be excluded.
Handle in accordance with good industrial hygiene and safety practice.

## 12 Ecological information

**Toxicity**
Toxicity to fish: flow-through test LC50 –Oryziaslatipes - > 95.4 mg/l- 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates
Static test EC50 - Daphnia magna (Water flea) - > 100 mg/l- 48 h OECD Test Guideline 202)
Toxicity to algae: static test ErC50 - SELENASTRUM - > 998 mg/l- 72 h (OECD Test Guideline 201)
Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil:No data available
Results of PBT and vPvB assessment: No data available
PBT/vPvB assessment : not available as chemical safety assessment not required/notconducted
Other adverse effect: No data available

## 13 Disposal considerations

Waste treatment methods Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a
Licensed professional wasted is postal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

## 14 Transport

DOT (US)
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

## 15 Regulatory information

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

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

**SARA311/312 Hazards**
Acute Health Hazard

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

**Pennsylvania Right to Know Components**

## 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 dangere uses 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

-End-