Revised date: 03/15/2020 Page 1 of 17

SAFETY DATA SHEET

Article 1 - Product Identification

Product Name: PAD Activity/Inhibitor Screening Kits

Catalog # Various

Kit Name	Catalog #	Kit Name	Catalog #
PAD Activity Kit	P312-863		
PAD1 Inhibitor Screening Kit	P310G-863	PAD3 Inhibitor Screening Kit	P310CG-863
PAD2 (mouse) Inhibitor Screening Kit	P310BG-863	PAD4 Inhibitor Screening Kit	P310DG-863
PAD2 (human) Inhibitor Screening Kit	P318BG-863	PAD Cocktail Inhibitor Screening Kit	P37C-863

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Manufacturer's Name:SignalChem Biotech Inc.Street Address:110-13120 Vanier PlaceCity, Prov. Postal Code:Richmond, BC, V6V 2J2

Fax: 604-232-4601 EMERGENCY PHONE: 604-232-4600

Article 2 - Hazards Identification - Active PAD Enzyme

- WHMIS Classification: Not WHMIS controlled.
- GHS classification: Skin irritation (Category 3); Eye irritation (Category 2B).
- Hazard Pictograms: none.
- Signal words: Warning.
- Hazard statements: Causes mild skin irritation (H316); Causes eye irritation (H320).
- **Precautionary statements:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305 + P351 + P338).
- Other hazards: none known.

Article 3 – Composition/Information on Ingredients

Chemical Characterization: Mixtures.

Description: This product consists of the substances listed below.

Common name	Chemical name	CAS-No.	Concentration
Glycerol	Glycerol	56-81-5	25%
NaCl	Sodium chloride	7647-14-5	0.875 %
Tris-HCl; Tris (hydroxymethyl) aminomethane hydrochloride	2 – Amino – 2 - (hydroxymethyl) propane - 1, 3 - diol hydrochloride	1185-53-1	0.788%
Glutathione	Glutathione	70-18-8	0.3073%
Protein		No data available	≤0.05%
DTT; Dithiothreitol	(R*,R*)-1,4-Dimercaptobutane-2,3-diol	3483-12-3	0.0038%
EDTA	Ethylenediaminetetraacetic acid	6381-92-6	0.0037%
PMSF; Phenylmethanesulfonyl fluoride	a-Toluenesulphonyl fluoride	329-98-6	0.002%

Article 4 - First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breathe in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Consult a physician.
- After swallowing: rinse the mouth with plenty of water and consult a physician.

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: None known.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Revised date: 03/15/2020 Page **2** of **17**

SAFETY DATA SHEET

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal
 protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- Precautions for sate handling: Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store in a dry and well-ventilated place in -70 °C. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

Glycerol (CAS-No: 56-81-5)

Values	Control parameters	Regulations
TWA	10 mg/m³ for mist	British Columbia, Canada
TWA	3 mg/m³ for respirable mist	British Columbia, Canada
TWA	10 mg/m ³	Alberta, Canada
TWAEV	10 mg/m ³	Ontario, Canada
TWAEV	10 mg/m ³	Quebec, Canada
TWA	10 mg/m ³	USA

• Appropriate engineering controls:

Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.

Individual protection measures:

Respiratory protection:

Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 - Physical and Chemical Properties

Appearance: Colorless fluid.	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	Explosion limits: Lower: 0.9 Vol %; Upper: 0.0 Vol %.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: 0.1 hPa
Boiling point/Boiling range: 100 °C.	Density: Not determined.
Flash point: > 100 °C.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: 400 °C.	Evaporation rate: Not determined.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: Fully miscible.

Article 10 - Stability and Reactivity

- Reactivity: Stable under recommended transport and storage conditions.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: No dangerous reactions known.
- Conditions to avoid: Heat and moisture.
- Incompatible materials: Strong acids/bases, strong oxidizing/reducing agents.
- Hazardous decomposition products: Carbon oxides may formed under fire conditions; no known decomposition information for other decomposition products.

Revised date: 03/15/2020 Page **3** of **17**

SAFETY DATA SHEET

Article 11 - Toxicological Information

- Acute toxicity: Not available.
- LD/LC50: Not available.
- Skin corrosion/irritation: Not available.
- Serious eye damage/eye irritation: Not available.
- Respiratory or skin sensitization: Not available.
- Germ cell mutagenicity: Not available.
- Carcinogenicity: No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- Reproductive toxicity: Not available.
- Teratogenicity: Not available.
- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Not available.
- Potential health effects:

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

- Signs and Symptoms of Exposure:
 - Prolonged or repeated exposure can cause: Nausea, Dizziness.
- Synergistic effects: Not available.

Article 12 - Ecological Information

- Eco-toxicity: Not applicable.
- Biodegradability: Not applicable.
- Bio-accumulative potential: Not applicable.
- Mobility in soil: Not applicable.
- PBT and vPvB assessment: Not applicable.
- Other adverse effects: Not applicable.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean
 the area.

Article 14 - Transport Information

- DOT: Not dangerous goods.
- IMDG: Not dangerous goods.
- IATA: Not dangerous goods.

Article 15 – Regulatory Information

- WHMIS Classification: Non-hazardous.
- GHS label elements: Not applicable.
- Signal word: Not applicable.
- Hazard statements: Not applicable.

Article 2 - Hazards Identification - DTT

- WHMIS Classification: Not WHMIS controlled.
- GHS classification: Skin irritation (Category 3)
- Hazard Pictograms: None.
- Signal words: WARNING
- Hazard statements: Causes mild skin irritation (H316)
- Precautionary statements: None.
- Other hazards: None known.

Article 3 - Composition/Information on Ingredients

Chemical Characterization: Substance.

Description: This product consists of the substance listed below.

Common name	Chemical name	CAS-No.	Concentration
DTT; Dithiothreitol	(R*,R*)-1,4-Dimercaptobutane-2,3-diol	3483-12-3	15.43%

Revised date: 03/15/2020 Page **4** of **17**

SAFETY DATA SHEET

Article 4 - First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breath in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- After swallowing: Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel
 unwell, seek medical advice.

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: None known.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal
 protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- Precautions for sate handling: Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store in a dry and well-ventilated place in -70 °C. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

NΑ

Appropriate engineering controls:

Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.

Individual protection measures:

Respiratory protection:

Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Appearance: Colorless fluid.	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	Explosion limits: Not available.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: >100 °C.	Density: Not determined.
Flash point: > 100 °C.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: Fully miscible.

Revised date: 03/15/2020 Page **5** of **17**

SAFETY DATA SHEET

Article 10 - Stability and Reactivity

- Reactivity: Stable under recommended transport and storage conditions.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: No dangerous reactions known.
- Conditions to avoid: Heat and moisture.
- Incompatible materials: Not determined.
- Hazardous decomposition products: Not determined.

Article 11 - Toxicological Information

- Acute toxicity: Not available.
- LD/LC50: Not available.
- Skin corrosion/irritation: Not available.
- Serious eye damage/eye irritation: Not available.
- Respiratory or skin sensitization: Not available.
- Germ cell mutagenicity: Not available.
- Carcinogenicity: No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- Reproductive toxicity: Not available.
- Teratogenicity: Not available.
- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Not available.
- Potential health effects: Inhalation: No data available Ingestion: No data available

Skin: No data available Eyes: No data available

- Signs and Symptoms of Exposure: No data available
- Synergistic effects: Not available.

Article 12 - Ecological Information

- Eco-toxicity: No data available.
- Biodegradability: Not applicable.
- Bio-accumulative potential: Not applicable.
- Mobility in soil: Not applicable.
- PBT and vPvB assessment: Not applicable.
- Other adverse effects: Not applicable.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- DOT: Not dangerous goods.
- IMDG: Not dangerous goods.
- IATA: Not dangerous goods.

Article 15 – Regulatory Information

- WHMIS Classification: Non-hazardous.
- GHS label elements: Not applicable.
- Signal word: Not applicable.
- Hazard statements: Not applicable.

Revised date: 03/15/2020 Page 6 of 17

SAFETY DATA SHEET

Article 2 - Hazard Identification - Trypsin

WHMIS/GHS classification:

Skin Irritation (Category 2), H315

Eye damage/Irritation (Category 2A), H319

Hazard Pictograms: GHS07



Sianal words: Warning

Hazard statements: H315: Causes skin irritation

H319: Causes serious eye irritation H335: May cause respiratory irritation

• Precautionary statements:

H315: P264: Wash hands thoroughly after handling

P280: Wear protective gloves

P302+P352: IF ON SKIN: wash with soap and plenty of water and rinse thoroughly

P332+P313: If skin irritation occurs: Get medical advice/attention. P362+P364: Take off contaminated clothing and wash before reuse.

H320: P264: Wash opened eyes with plenty of water for at least 15 minutes. Consult a 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.

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

H335: P342+P311: If experiencing respiratory symptoms, call a POISON CONTROL CENTRE / doctor.

Other hazards: none known.

Article 3 - Composition/Information on Ingredients

Chemical Characterization: Mixtures.

Description: This product consists of the substances listed below.

Common name	Chemical name	CAS-No.	Concentration
Glycerol	Glycerol	56-81-5	≤25%
Trypsin	Trypsin	9002-07-7	≤1.0%
Calcium chloride	CaCl ₂	10043-52-4	0.2%
Hydrochloric acid	HCI	7647-01-0	0.03%

Article 4 – First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breathe in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Consult a physician.
- After swallowing: Rinse the mouth with plenty of water and consult a physician.

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: Hydrogen chloride gas, sodium oxides.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- Precautions for sate handling: Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store in a dry and well-ventilated place in 0 to -70 °C. Keep container upright and tightly closed.

SAFETY DATA SHEET

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

Glycerol (CAS-No: 56-81-5)

Values	Control parameters	Regulations
TWA	10 mg/m³ for mist	British Columbia, Canada
TWA	3 mg/m³ for respirable mist	British Columbia, Canada
TWA	10 mg/m ³	Alberta, Canada
TWAEV	10 mg/m ³	Ontario, Canada
TWAEV	10 mg/m ³	Quebec, Canada
TWA	10 mg/m ³	USA

Appropriate engineering controls:

Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.

Individual protection measures:

Respiratory protection:

Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Appearance: Colorless fluid.	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	Explosion limits: Lower: 0.9 Vol %; Upper: 0.0 Vol %.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: 0.1 hPa
Boiling point/Boiling range: 100 °C.	Density: Not determined.
Flash point: > 100 °C.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: 400 °C.	Evaporation rate: Not determined.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: Fully miscible.

Article 10 - Stability and Reactivity

- Reactivity: Stable under recommended transport and storage conditions.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: No dangerous reactions known.
- Conditions to avoid: Heat and moisture.
- Incompatible materials: Strong acids/bases, strong oxidizing/reducing agents.
- Hazardous decomposition products: Carbon oxides may form under fire conditions; no known decomposition information for other decomposition products.

Article 11 - Toxicological Information

- Acute toxicity: Not available.
- LD/LC50: > 5,000 mg/kg (Trypsin)
- Skin corrosion/irritation: Not available.
- Serious eye damage/eye irritation: Not available.
- Respiratory or skin sensitization: Not available.
- Germ cell mutagenicity: Not available.
- Carcinogenicity: No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- Reproductive toxicity: Not available.
- Teratogenicity: Not available.
- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Not available.
- Potential health effects:

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Revised date: 03/15/2020 Page **8** of **17**

SAFETY DATA SHEET

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Signs and Symptoms of Exposure:

Prolonged or repeated exposure can cause: Nausea, Dizziness.

Synergistic effects: Not available.

Article 12 - Ecological Information

• Eco-toxicity: Not applicable.

• Biodegradability: Not applicable.

Bio-accumulative potential: Not applicable.

• Mobility in soil: Not applicable.

PBT and vPvB assessment: Not applicable.

Other adverse effects: Not applicable.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean
 the area.

Article 14 - Transport Information

- DOT: Not dangerous goods.
- IMDG: Not dangerous goods.
- IATA: Not dangerous goods.

Article 15 - Regulatory Information

- WHMIS Classification: Non-hazardous.
- GHS label elements: Not applicable.
- Signal word: Not applicable.
- Hazard statements: Not applicable.

Article 2 - Hazards Identification - Antibody

 WHMIS/GHS classification: Some components contain ProClin 300. This product is classified as a skin sensitizer according to Directive 1999/45/EC and its amendments.

R43: May cause skin sensitization by skin contact.

Skin Sensitization (Category 1)

Hazard Pictograms: GHS07



Signal words: Warning

Hazard statements: H317: May cause an allergic skin reaction

Precautionary statements:

H317: P261: Avoid breathing mist

P272: Contaminated clothing should not be allowed out of the workplace.

P280: Wear protective gloves

P302+P352: IF ON SKIN: wash with soap and plenty of water and rinse thoroughly P332/333+P313: If skin irritation or rash occurs: Get medical advice/attention.

P362+P364: Take off contaminated clothing and wash before reuse.

Article 3 – Composition/Information on Ingredients

Chemical Characterization: Substance.

Description: This product consists of the substance listed below.

Common name	Chemical name	CAS-No.	Concentration
Modified Alkyl Carboxylate		-	<0.01%
Mixture of: 5-Chloro-2-methyl-4-isothiazolin-3-one 2-Methyl-4-isothiazolin-3-one		55965-84-9 26172-55-4 2682-20-4	<0.01%
Modified Glycol		-	<1.6%

Revised date: 03/15/2020 Page **9** of **17**

SAFETY DATA SHEET

Article 4 - First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breath in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- After swallowing: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.
 Immediately consult a physician.

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: None known.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- **Precautions for sate handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store in a cool, dry place. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

NΑ

Appropriate engineering controls:

Follow standard laboratory practices.

Individual protection measures:

Respiratory protection:

Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 - Physical and Chemical Properties

Appearance: Colorless fluid.	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	Explosion limits: Not available.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: >100 °C.	Density: Not determined.
Flash point: > 100 °C.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Not available.	Solubility in / Miscibility with Water: Soluble.

Article 10 - Stability and Reactivity

- Reactivity: Stable under recommended transport and storage conditions.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: No dangerous reactions known.
- Conditions to avoid: Strong oxidizing agents, reducing agents, amines, mercaptans.

Revised date: 03/15/2020 Page **10** of **17**

SAFETY DATA SHEET

• Hazardous decomposition products: Hazardous decomposition products formed under fire conditions – carbon oxides, nitrogen oxides, Sulphur oxides, hydrogen chlorine gas.

Article 11 - Toxicological Information

- Acute toxicity: Not available.
- LD/LC50: LD50 Oral rat 862 mg/kg; LD50 Dermal rabbit 2800 mg/kg.
- Skin corrosion/irritation: Can cause severe burns. Corrosive rabbit.
- Serious eye damage/eye irritation: Corrosive to eyes rabbit.
- Respiratory or skin sensitization: May cause allergic skin reaction.
- Germ cell mutagenicity: Not available.
- Carcinogenicity: Not available.
- Reproductive toxicity: Not available.
- Teratogenicity: Not available.
- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Not available.
- Potential health effects:

Inhalation: Harmful if inhaled. Material is extremely destructive to the tissues of the mucous membranes and upper respiratory tract. Ingestion: Harmful if swallowed. Causes burns.

Skin: Harmful if absorbed through skin. Causes burns.

Eves: Causes eve burns.

- Signs and Symptoms of Exposure: No data available
- Chronic exposure: May cause allergic dermatitis.

Article 12 - Ecological Information

- Eco-toxicity: No data available.
- Biodegradability: Not available.
- Bio-accumulative potential: Not available.
- Mobility in soil: Not available.
- PBT and vPvB assessment: Not available.
- Other adverse effects: Not available.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- DOT: Not dangerous goods.
- IMDG: Not dangerous goods.
- IATA: Not dangerous goods.

Article 15 – Regulatory Information

- TSCA (Toxic Substances Control Act): On TSCA Inventory.
- SARA 313 Components: Not listed.
- SARA 311/312: Acute Health Hazard.
- CERCLA Reportable Quantity: Not listed.
- California Proposition 65: Not listed.

Article 2 - Hazards Identification - TMB Substrate

WHMIS/GHS classification: Contains Tetramethylbenzidine in a Proprietary Buffer

Irritant, Dermal (Category 2)
Reproductive Toxicity (Category 1B)
Acute Toxicity, Dermal (Category 4)
Acute Toxicity, Inhalation (Category 4)
Eye Irritation (Category 2A)

Hazard Pictograms:



Signal words: WARNING: DANGER
 Hazard statements: H315: Causes skin irritation

H319: Causes serious eye irritation

Revised date: 03/15/2020 Page 11 of 17

SAFETY DATA SHEET

H312: Harmful in contact with skin

H332: Harmful if inhaled

H335: May cause respiratory irritation

H360: May damage the unborn child

Precautionary statements:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P261: Avoid breathing mist/fumes.

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink, or smoke when using this product.

P271: Only use in a well-ventilated area.

P280: Wear protective gloves and protective clothing. P281: Use personal protective equipment as required.

P301+P312: IF SWALLOWED: Call poison control center or doctor if you feel unwell.

P302+P352: IF ON SKIN: wash with soap and plenty of water and rinse thoroughly.

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.

P362+P364: Take off contaminated clothing and wash before reuse.

Article 3 - Composition/Information on Ingredients

Chemical Characterization: Substance.

Description: This product consists of the substance listed below. There are no other ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and require reporting in this section.

Common name	Chemical name	CAS-No.	Concentration
Tetramethylbenzidine		54827-17-7	<0.05%

Article 4 - First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breathe in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- After swallowing: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- Precautions for sate handling: Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store in a cool place. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

NA

- Appropriate engineering controls:
 - Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- Individual protection measures:
 - Respiratory protection:

Revised date: 03/15/2020 Page 12 of 17

SAFETY DATA SHEET

Use appropriate respirator if there is inadequate ventilation by following the government standards. Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Appearance: Liquid.	Danger of explosion: Not available.
Odour/Odour Threshold: Not determined.	Explosion limits: Not available.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: Not available.	Density: Not determined.
Flash point: Not available.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Not available.	Solubility in / Miscibility with Water: Fully miscible.

Article 10 - Stability and Reactivity

- Reactivity: Stable under recommended transport and storage conditions.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: No dangerous reactions known.
- Conditions to avoid: Heat and moisture.
- Incompatible materials: Not determined.
- Hazardous decomposition products: Not determined.

Article 11 - Toxicological Information

- Acute toxicity: Not available.
- LD/LC50: Not available.
- Skin corrosion/irritation: Not available.
- Serious eye damage/eye irritation: Not available.
- Respiratory or skin sensitization: Not available.
- Germ cell mutagenicity: Genotoxicity in vitro mouse lymphocyte, mutation in mammalian somatic cells.
- Carcinogenicity: Not classified to its carcinogenicity based on its IARC, or NTP, or OSHA, or ACGIH classification at levels less than 0.1%
- Reproductive toxicity: May cause congenital malformation in the fetus. Presumed human reproductive toxicant.
- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Not available.
- Potential health effects:
 - Inhalation: Toxic if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: Causes serious eye irritation.

- Signs and Symptoms of Exposure: No data available
- Synergistic effects: Not available.

Article 12 - Ecological Information

- Eco-toxicity: No data available.
- Biodegradability: Not available.
- Bio-accumulative potential: Not available.
- Mobility in soil: Not available.
- PBT and vPvB assessment: Not available.
- Other adverse effects: Not available.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean
 the area.

Revised date: 03/15/2020 Page **13** of **17**

SAFETY DATA SHEET

Article 14 - Transport Information

- DOT: Not dangerous goods.
- IMDG: Not dangerous goods.
- IATA: Not dangerous goods.

Article 15 - Regulatory Information

- TSCA (Toxic Substances Control Act): On TSCA Inventory.
- SARA 313 Components: Not applicable.
- SARA 311/312: Not applicable.
- CERCLA Reportable Quantity: Not applicable.
- California Proposition 65: Not listed.

Article 2 - Hazards Identification - Stop Solution

- Stop Solution contains Sulfuric acid
- WHMIS/GHS classification:

Skin Irritation (Category 2), H315 Eye Irritation (Category 2), H319

Hazard Pictograms: GHS07



Signal words: Warning

• Hazard statements: H315: Causes skin irritation

H319: Causes serious eye irritation

Precautionary statements:

H315: P264: Wash hands thoroughly after handling

P280: Wear protective gloves

P302+P352: IF ON SKIN: wash with soap and plenty of water and rinse thoroughly

P332+P313: If skin irritation occurs: Get medical advice/attention. P362+P364: Take off contaminated clothing and wash before reuse.

H320: P264: Wash opened eyes with plenty of water for at least 15 minutes. Consult a 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.

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

Other hazards: none known.

Article 3 - Composition/Information on Ingredients

Chemical Characterization: Substance.

Description: This product consists of the substance listed below.

Common name	Chemical name	CAS-No.	Concentration
Sulfuric Acid	Sulfuric Acid	7664-93-9	<20%

Article 4 - First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breath in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- · After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- After swallowing: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.
 Immediately consult a physician.
- Potential acute / delayed health effects: Causes serious eye irritation / causes burns. Causes skin irritation / causes burns. Harmful if inhaled. Harmful if swallowed. Irritating to mouth, throat and stomach. Causes burns.

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: None known.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Revised date: 03/15/2020 Page **14** of **17**

SAFETY DATA SHEET

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- Precautions for sate handling: Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store in a dry and well-ventilated place in -70 °C. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

 $N \Delta$

Appropriate engineering controls:

Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.

• Individual protection measures:

Respiratory protection:

Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 - Physical and Chemical Properties

Appearance: Colorless fluid.	Danger of explosion: Not available.
Odour/Odour Threshold: Pungent.	Explosion limits: Not available.
pH: ~1	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: Not available.	Density: Not determined.
Flash point: Not available.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: Fully miscible.

Article 10 - Stability and Reactivity

- Reactivity: Contact with metals produces highly flammable hydrogen gas. Addition of water liberates excessive heat.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid: Bases, Halides, Metals, Alkalis, Acetonitrile.
- Incompatible materials: Most metals, oxidizers, reducers, bases, metal carbonates, cyanides, sulphides, carbides, oxides, metal acetylides, hydrides, halogens, organic or combustible materials, perchlorates, acetonitrile, permanganates, alcohols, picrates.
- Hazardous decomposition products: Products formed under fire conditions; Oxides of Sulphur, Hydrogen gas.

Article 11 - Toxicological Information

- Acute toxicity: Can cause severe burns upon contact while the vapours or mist are corrosive and can cause severe irritation or damage t the nose, throat and lungs. Ingestion of this product causes pain, nausea and vomiting and may be fatal if large doses are ingested.
- LD/LC50: Not available.
- Skin corrosion/irritation: Can cause severe burns.
- Serious eye damage/eye irritation: Can cause severe burns.
- Respiratory or skin sensitization: Not available.
- Germ cell mutagenicity: Not available.
- Carcinogenicity: No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- Reproductive toxicity: Not available.
- Teratogenicity: Not available.

Revised date: 03/15/2020 Page **15** of **17**

SAFETY DATA SHEET

- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Can cause severe burns.
- Potential health effects:

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed. Causes burns.

Skin: May be harmful if absorbed through skin. Causes burns.

Eyes: Causes eye burns.

- Signs and Symptoms of Exposure: No data available
- **Effects of Chronic Exposure:** Repeated skin contact may lead to dermatitis while repeated inhalation may cuase bronchitis, conjunctivitis, respiratory infections, emphysema and digestive disturbances.

Article 12 - Ecological Information

- Eco-toxicity: This product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
- Biodegradability: Not available.
- Bio-accumulative potential: Not available.
- Mobility in soil: Not available.
- PBT and vPvB assessment: Not available.
- Other adverse effects: Not available.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- DOT: UN 2796, Suphuric Acid, Hazard Class 8, Packing group II.
- IMDG: UN 2796, Suphuric Acid, Hazard Class 8, Packing group II.
- IATA: UN 2796, Suphuric Acid, Hazard Class 8, Packing group II, EmS Number F-A, S-B.

Article 15 – Regulatory Information

- Toxic Substances Control Act: On TSCA Inventory.
- SARA 313 Components: Not listed.
- SARA 311/312 Hazards: Acute Health Hazard.
- CERCLA Reportable Quantity: 1000 lbs.
- California Proposition 65: Not listed.

Article 2 - Hazards Identification - Buffers

- WHMIS Classification: Not WHMIS controlled.
- GHS classification: None
- Hazard Pictograms: None
- Signal words: None
- Hazard statements: None
- Precautionary statements: None
- Other hazards: None known.

Article 3 - Composition/Information on Ingredients

Chemical Characterization: Mixtures.

Description: There are no ingredients other than those listed in proceeding sections which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Article 4 - First-aid Measures

- General information: Consult a physician by providing the SDS.
- After inhalation: Breath in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- After skin contact: Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- After eye contact: Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- After swallowing: Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.

Revised date: 03/15/2020 Page 16 of 17

SAFETY DATA SHEET

Article 5 - Fire-fighting Measures

- Suitable extinguishing media: Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- Specific hazards arising from the substance or mixture: None known.
- Special protective equipment and precautions for fire-fighters: Self-contained breathing apparatus if necessary.

Article 6 - Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures: Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- Environmental precautions: Do not allow to enter drains.
- Methods and materials for containment and cleaning up: Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- Precautions for sate handling: Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- Conditions for safe storage: Store as defined by product specifications/label. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

Components with limit monitoring values at workplace:

NA

Appropriate engineering controls:

Follow standard laboratory practices.

Individual protection measures:

Respiratory protection:

Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:

Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:

Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:

Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 - Physical and Chemical Properties

Appearance: Colorless fluid.	Danger of explosion: Not determined.
Odour/Odour Threshold: Not determined.	Explosion limits: Not available.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: Not determined.	Density: Not determined.
Flash point: Not determined.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Not determined.	Solubility in / Miscibility with Water: Not determined.

Article 10 - Stability and Reactivity

- Reactivity: Stable under recommended transport and storage conditions.
- Chemical stability: Stable under recommended transport and storage conditions.
- Possible hazardous reactions: No dangerous reactions known.
- Conditions to avoid: Heat and moisture.
- Incompatible materials: Not determined.
- Hazardous decomposition products: Not determined.

Article 11 - Toxicological Information

- Acute toxicity: Not available.
- LD/LC50: Not available.
- Skin corrosion/irritation: Not available.
- Serious eye damage/eye irritation: Not available.
- Respiratory or skin sensitization: Not available.

Revised date: 03/15/2020 Page **17** of **17**

SAFETY DATA SHEET

- Germ cell mutagenicity: Not available.
- Carcinogenicity: No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- Reproductive toxicity: Not available.
- Teratogenicity: Not available.
- Specific target organ toxicity single exposure/ repeated exposure (GHS): Not available.
- Aspiration hazard: Not available.
 - Potential health effects: Inhalation: No data available Ingestion: No data available Skin: No data available Eyes: No data available
- Signs and Symptoms of Exposure: No data available
- Synergistic effects: Not available.

Article 12 - Ecological Information

- Eco-toxicity: No data available.
- Biodegradability: Not applicable.
- Bio-accumulative potential: Not applicable.
- Mobility in soil: Not applicable.
- PBT and vPvB assessment: Not applicable.
- Other adverse effects: Not applicable.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- Contaminated packaging: Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- DOT: Not dangerous goods.
- IMDG: Not dangerous goods.
- IATA: Not dangerous goods.

Article 15 – Regulatory Information

- WHMIS Classification: Non-hazardous.
- GHS label elements: Not applicable.
- Signal word: Not applicable.
- Hazard statements: Not applicable.

Article 16 - Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.