

## MATERIAL SAFETY DATA SHEET

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

|   |   |
|---|---|
| <b>1.1 Product Identification</b>   | STJE0000004   |
| <b>1.2. Relevant identified uses of the substance or mixture and uses advised against</b> | This kit is composed of mixtures and substances which must only be used together under the guidelines of the kit protocol. This kit is intended for the purposes of scientific research use only. It must not be used in diagnostic or other medical procedures.                                    |
| <b>1.3. Details of the supplier of the safety data sheet</b>                              | St John's Laboratory Ltd , Knowledge Dock Business Centre, Docklands Campus, University Way, London, E16 2RD, United Kingdom<br>Tel: 0208 223 3081<br>Email: <a href="mailto:info@stjohnslabs.com">info@stjohnslabs.com</a>   |
| <b>1.4 Emergency Phone</b>  | UK - Call 111 if you urgently need medical assistance or advice if in a non-life-threatening situation. 111 is available 24 hours a day, 365 days a year.<br>USA – Emergency services – Dial 911<br>EU – Emergency services – Dial 112<br>ROW – Please seek assistance from local country services. |

### SECTION 2: HAZARDS SUMMARY

|                                  |   |
|----------------------------------|---|
| <b>Emergency summary</b>         | Excessive exposure may require use of first aid kit and medical follow-up.  |
| <b>GHS Hazard Classification</b> | Not a hazardous substance or mixture according to the Globally Harmonised System of Classification and Labelling Chemicals (GHS). |

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component   | Physical Form                   | ingredient                    | Concentration | CAS No.                | EC No.                   |
|---|---------------------------------|-------------------------------|---------------|------------------------|--------------------------|
| Microwells  | Plastic non-reactive wells      | -                             | -             | -                      | -                        |
| Lyophilised Standard                                | White lyophilized powder        | BSA<br>Proclin-300            | 2%<br>0.1%    | -<br>96118-96-6        | -<br>911-418-6           |
| Concentrated Biotinylated Detection Antibody (100x) | Odourless and colourless liquid | Glycerol                      | 50%           | 56-81-5                | 200-289-5                |
| Concentrated HRP-Streptavidin (100x)                | Odourless and colourless liquid | Glycerol                      | 50%           | 56-81-5                | 200-289-5                |
| Standard/Sample Diluent                             | Odourless and colourless liquid | Proclin-300                   | 0.1%          | 96118-96-6             | 911-418-6                |
| Biotinylated-Detection Antibody Diluent             | Odourless and colourless liquid | Proclin-300                   | 0.1%          | 96118-96-6             | 911-418-6                |
| HRP-Streptavidin Diluent                            | Odourless and colourless liquid | Proclin-300                   | 0.1%          | 96118-96-6             | 911-418-6                |
| Wash Buffer (25x)                                   | Odourless and colourless liquid | Tween-20                      | 1%            | 9005-64-5 /<br>89-83-8 | 500-018-3 /<br>201-944-8 |
| TMB Substrate                                       | Liquid                          | 3,3',5,5'tetramethylbenzidine | 0.05%         | 54827-17-7             | 259-364-6                |
| Stop Solution                                       | Odourless and colourless liquid | Sulphuric acid (H2SO4)        | 0.5 mol/L     | 7664-93-9              | 231-639-5                |

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## SECTION: 4 FIRST-AID MEASURES

### 4.1 General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

### 4.2 If inhaled

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

### 4.3 In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

### 4.4 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### 4.5 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## SECTION 5 FIRE FIGHTING MEASURES

### 5.1 Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical, carbon dioxide or appropriate foam. For small fires, use media such as "alcohol" foam, dry chemical or carbon dioxide. For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.

### 5.2 Special precautions for fire-fighters

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### 5.3 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### 6.1 Person-related safety precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

### 6.2 Measures for environmental protection

Prevent further leakage or spillage if safe to do so. Do not let enter drains. Discharge into the environment must be avoided.

### 6.3 Measures for containment and cleaning

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Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

## SECTION 7 HANDLING AND STORAGE

### 7.1 Handling

- Wear appropriate protective clothing and safety gloves.
- Avoid inhalation.
- Avoid contact with eyes, skin and clothing.
- Mechanical exhaust required.
- Keep away from ignition sources, heat and flame.
- No smoking at working site.
- Incompatibilities: Strong oxidizing agents, Strong acids. Handling and unloading should be light, to prevent packaging broken, damp and cause losses.
- Working place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

### 7.2 Storage

- Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- Keep away from heat, sparks and flame.
- Keep away from sources of ignition.
- Incompatible: Strong oxidizing agents, Strong acids.
- Storage place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

## SECTION 8 EXPOSURE CONTROL/PPE

| Name                           | Occupational exposure limits (EH40/2005 WEL, UK) |
|--------------------------------|--|
| 3,3',5,5' Tetramethylbenzidine | -  |
| Glycerol                       | TWA (8 h): 10 mg/m <sup>3</sup> . Form: Mist     |
| ProClin-300                    | -  |
| Sulphuric acid                 | TWA 0.05 mg/m <sup>3</sup> Form: Mist            |
| Tween-20                       | -  |

### 8.1 Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

### Occupational exposure limits in the workplace

|                                    |                   |
|------------------------------------|-------------------|
| <b>MAC (mg/m<sup>3</sup>)</b>      | No data available |
| <b>PC-STEL (mg/m<sup>3</sup>)</b>  | No data available |
| <b>TLV-TWA (mg/m<sup>3</sup>)</b>  | No data available |
| <b>PC-TWA (mg/m<sup>3</sup>)</b>   | No data available |
| <b>TLV-C (mg/m<sup>3</sup>)</b>    | No data available |
| <b>TLV=STEL (mg/m<sup>3</sup>)</b> | No data available |

### 8.2 Personal Protective Equipment

Respiratory: Government approved respirator if needed.

Eye/face: Chemical safety goggles if needed.

Clothing: Wear appropriate protective clothing.

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

Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.

### 8.3 Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling.

## SECTION 9 PHYSICAL/CHEMICAL PROPERTIES

|                                    |                      |
|------------------------------------|----------------------|
| <b>Appearance</b>                  | Liquid               |
| <b>Smell</b>                       | Odourless            |
| <b>Boiling point/boiling range</b> | °C no data available |
| <b>Melting point/melting range</b> | °C no data available |
| <b>Flash Point</b>                 | °C no data available |
| <b>Autoignition temperature</b>    | °C no data available |
| <b>Oxidation</b>                   | No data available    |
| <b>Water solubility</b>            | No data available    |
| <b>Viscosity</b>                   | No data available    |

## SECTION 10 STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks

### 10.5 Incompatible materials

Strong oxidizing agent, Light sensitive, Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents, Amines, Mercaptans.

### 10.6 Hazardous decomposition products

Other decomposition products: No data available

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## SECTION 11 TOXICOLOGICAL INFORMATION

| Name   | LD50 Oral           | LD50 Dermal                        | LC50 Inhalation                               |
|--|---------------------|------------------------------------|---|
| <b>3,3',5,5'</b><br><b>Tetramethyl benzidine</b> | -                   | -                                  | -   |
| <b>Glycerol</b>                                  | = 12600 mg/kg (Rat) | > 10g/kg (Rabbit)                  | > 570 mg/m <sup>3</sup> (Rat) 1 h             |
| <b>ProClin-300</b>                               | 862 mg/kg (Rat)     | 2,800 mg/kg (Rabbit)               | 4 h - 16.67 mg/l - vapor (Calculation method) |
| <b>Sulphuric acid</b>                            | 2,140 mg/kg (Rat)   | Skin - Rabbit                      | -   |
| <b>Tween-20</b>                                  | 38,900 mg/kg (Rat)  | No skin irritation - 4 hr (Rabbit) | -   |

Does not cause skin sensitization (Guinea Pig)

**Acute toxicity** not considered harmful

### Other potential effects

|                              |                           |
|------------------------------|---------------------------|
| <b>Eyes</b>                  | May cause eye irritation  |
| <b>Skin</b>                  | May cause eye irritation  |
| <b>Inhalation</b>            | Harmful by inhalation     |
| <b>Ingestion</b>             | Swallowing may be harmful |
| <b>Carcinogenesis</b>        | N/A                       |
| <b>Mutagenic effect</b>      | N/A                       |
| <b>Reproduction toxicity</b> | N/A                       |
| <b>Allergenicity</b>         | N/A                       |
| <b>Target organ</b>          | No known effects          |

## SECTION 12 ECOLOGICAL INFORMATION

|                         |  |
|-------------------------|--|
| <b>Ecotoxicity</b>      | Contains no substances that are dangerous to the environment |
| <b>Mobility</b>         | No useful information  |
| <b>Biodegradability</b> | No useful information  |
| <b>Biocumulativity</b>  | No useful information  |

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| Name                                   | Toxicity to algae  | Toxicity to fish  | Toxicity to daphnia and other aquatic invertebrates   | SECTION 13 DISPOSAL CONSIDERATION   |
|--|--|---|---|---|
| <b>3,3',5,5' Tetramethyl benzidine</b> | -  | -   | -   | <b>13.1 Disposal methods</b><br>Dispose of waste in accordance to applicable national, regional, or local regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. |
| <b>Glycerol</b>                        | -  | LC50 51 – 57 mL/L (Oncorhynchus mykiss) 96 h  | EC50 500 mg/L (Daphnia magna) 24 h  | <b>13.2 Contaminated packaging</b><br>Dispose in the same manner as unused product.   |
| <b>ProClin-300</b>                     | -  | flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 0.19 mg/l - 96 h (US-EPA)<br><b>Chronic toxicity</b> - semi-static test NOEC - Oncorhynchus mykiss (rainbow trout) - 0.098 mg/l - 35 d (OECD Test Guideline 215) | flow-through test LC50 - Daphnia magna (Water flea) - 0.18 mg/l - 48 h (US-EPA)<br><b>Chronic toxicity</b> - flow-through test NOEC - Daphnia magna (Water flea) - 0.1 mg/l - 21 d (US-EPA) | <b>SECTION 14 TRANSPORT INFORMATION</b><br>RID/ADR: Non-Hazardous for Transport: This substance is considered non-hazardous for transport<br>IATA: Non-Hazardous for Air Transport.<br>IMO: Non-Hazardous for Sea Transport.  |
| <b>Sulphuric acid</b>                  | ErC50 - Desmod esmus subspicatus (green algae) - > 100 mg/l - 72 h | -   | EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)   | <b>SECTION 15 REGULATORY INFORMATION</b><br>This material safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008 and its amendments.   |
| <b>Tween-20</b>                        | -  | static test LL50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h   | EC50 - Daphnia - > 10 mg/l - 48 h   |   |

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