



## Safety Data Sheet

Product Name: Mouse TNF-alpha Quantikine ELISA Kit, 2 Plate

Reviewed on: 17 October 2011

### 1. Identification of Substance:

- **Other means of identification: Catalog Number: MTA00**  
Components: Microplates, Conjugate (contains Proclin 300), Standard (contains Sodium azide), Control (contains Sodium azide), Assay Diluent (contains Proclin 300), Calibrator Diluent (contains Proclin 300), Wash Buffer, Color Reagent A, Color Reagent B (contains Tetramethylbenzidine) and Stop Solution (contains Hydrochloric acid).
- **GHS product identifier: NA**
- **Application of the substance / the preparation: For Research Use Only**
- **Manufacturer/Supplier:**  
R&D Systems Inc.  
614 McKinley Place N.E.  
Minneapolis, MN 55413  
USA  
1-800-328-2400
- **Emergency information:** In case of a chemical emergency, spill, fire, or exposure, call R&D Systems at (612) 379-2956 or (800)-343-7475. In Europe call +44(0)1235-529449.

### 2. Hazard Identification:

- **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]**  
Some components indicated above contain Proclin 300: Skin Sens. 1; H317 – May cause an allergic skin reaction.
- **Signal Word: WARNING**
- **Precautionary statements:**  
P261: Avoid breathing mist.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P280: Wear protective gloves.
- **Response:**  
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: get medical attention. Wash contaminated clothing before reuse.
- **Classification according to Directive 67/548/EEC:** The product is classified as a skin sensitizer according to Directive 1999/45/EC and its amendments.
- **Hazard Symbol / R-Phrase / S-Phrase:** R43: May cause sensitization by skin contact.
- **Other hazards:** none



### 3. Information on Ingredients:

Description: Proclin 300

Contains	CAS No.	EC-No.	Index-No.	Content
Modified Alkyl Carboxylate	-	-	-	<0.01%
Mixture of 5-Chloro-2-Methyl-4-Isothiazolin-3-One (26172-55-4) and - Methyl-4-Isothiazolin-3-One (2682-20-4)	55965-84-9	-	613-167-00-5	<0.01%
Modified Glycol	-	-	-	≤1.6%

### 4. First Aid Measures:

- **IF IN EYES:** Rinse thoroughly with water for at least 15 minutes and immediately consult a physician.
- **IF ON SKIN (or hair):** Immediately take off contaminated clothing or shoes. Wash with plenty of soap and water. Consult a physician.
- **IF INHALED:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- **IF SWALLOWED:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately consult a physician.



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### 5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Special precautions for fire-fighters:** Self contained breathing apparatus and full protective clothing must be worn in case of fire.

### 6. Accidental Release Measures:

- **Person-related safety precautions:** Use appropriate personal protective equipment to prevent contamination of skin, eyes and personal clothing. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
- **Measures for environmental protection:** Keep away from drains.
- **Measures for containment and cleaning:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 7. Handling and Storage:

- **Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use normal measures for preventive fire protection.
- **Conditions for safe storage:** Store in a cool, dry place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### 8. Exposure Controls and Personal Protection:

- **Control parameters:** Contains no substances with occupational exposure limit values.
- **Individual protection measures:** Wash hands thoroughly after handling chemical products and before eating, smoking or using the toilet. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

**Eye/face protection:** Wear approved safety goggles.

**Skin/hand protection:** Handle with protective gloves, plastic or rubber. 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 as protection against splashing or contamination.

**Other skin protection:** Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.

**Respiratory protection:** In case of inadequate ventilation, use a suitable respirator. 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).

### 9. Physical and Chemical Properties:

- |   |  |
|---|--|
| ▪ <b>Appearance:</b> Clear Liquid                 | <b>Upper/lower flammability or explosive limits:</b> Not available |
| ▪ <b>Odor:</b> Not available                      | <b>Vapor density :</b> Not available                               |
| ▪ <b>Odor threshold:</b> Not available            | <b>Vapor pressure:</b> Not available                               |
| ▪ <b>pH:</b> Not available                        | <b>Relative density:</b> 1.03 g/cm <sup>3</sup>                    |
| ▪ <b>Melting point/freezing point:</b> -40° C     | <b>Solubility in/Miscibility with Water:</b> Soluble               |
| ▪ <b>Boiling point/Boiling range:</b> 189° C      | <b>Partition coefficient: octanol/water:</b> Not available         |
| ▪ <b>Flash point:</b> 118° C – closed cup         | <b>Auto igniting:</b> Not available                                |
| ▪ <b>Evaporation rate:</b> Not available          | <b>Decomposition temperature:</b> Not available                    |
| ▪ <b>Flammability (solid, gas):</b> Not available | <b>Viscosity:</b> Not available                                    |

### 10. Stability and Reactivity:

- **Chemical Stability:** Stable under recommended storage conditions.
- **Conditions to avoid:** Strong oxidizing agents, reducing agents, Amines, Mercaptans
- **Hazardous decomposition products:** Hazardous decomposition products formed under fire conditions – Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas.



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### 11. Toxicological Information:

- **Acute toxicity:** LD50 Oral – rat – 862 mg/kg  
LD50 Dermal – rabbit- 2800 mg/kg
- **Skin corrosion/irritation:** Can cause severe burns. Skin – rabbit – Corrosive
- **Serious eye damage/irritation:** Rabbit – Corrosive to eyes
- **Respiratory or skin sensitization:** May cause allergic skin reaction.
- **Germ cell mutagenicity:** No data available
- **Carcinogenicity:** No data available
- **Reproductive toxicity:** No data available
- **Specific target organ toxicity (STOT) -single exposure:** No data available
- **Specific target organ toxicity (STOT) -repeated exposure:** No data available
- **Aspiration hazard:** Can cause severe burns.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
  - Inhalation:** Harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
  - Ingestion:** Harmful if swallowed. Causes burns.
  - Skin contact:** Harmful if absorbed through skin. Causes burns.
  - Eye contact:** Causes eye burns.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:**
  - Short term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Not available.
  - Long term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Allergic contact dermatitis.
- **Effects of chronic exposure:** Proclin 300 at levels greater than or equal to 0.1% is not identified as probable, possible or a confirmed human carcinogen by IARC.
- **Numerical measures of toxicity:** Not available
- **Other Information:** NA

### 12. Ecological Information:

- **Ecotoxicity:** No data available
- **Biodegradability:** No data available.
- **Bioaccumulative potential:** No data available.
- **Mobility in soil:** No data available.
- **Other adverse effects:** Toxic to aquatic organisms.

### 13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Contaminated packaging:** Dispose in the same manner as unused product.
- **Special precautions:** Dispose of small amounts of spilled material as described in section 6. Large spills must be dealt with separately by qualified disposal personnel. Avoid dispersal of spilled material to soil, waterways, drains and sewers.

### 14. Transport Information:

- **UN Number:** None
  - **DOT regulations:** - **Hazard class:** None
  - **Land transport ADR/RID (cross-border):** Not regulated.
  - **Maritime transport IMDG:** Not regulated.
  - **Marine pollutant:** No
  - **Air transport ICAO-TI and IATA-DGR:** Not regulated.
- Transport/Additional information:** Not dangerous according to the above specifications.



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### 15. Regulations:

- **EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV:**  
List of substances subject to authorization **Substances of very high concern:** None of the components are listed.  
**Annex XVII – Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:** Not applicable.
- **Hazard Symbol / R-Phrase / S-Phrase:** R43 May cause sensitization by skin contact.

### 16. Other Information:

- **Notice to reader:** To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

### 2. Hazards Identification:

- **Classification:** N/A. The classification was made according to the latest edition of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
- **Emergency overview:** —
- **Special Hazards:** N/A
- **Routes of exposure:**
  - Inhalation
  - Ingestion
  - Skin

### 3. Information on Ingredients:

Contains	EINECS	CAS No.	Content %	Classification
Sodium Azide	247-852-1	26628-22-8	<0.1%	Not hazardous at this concentration

### 4. First Aid Measures:

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly. Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Rinse mouth with water. Seek medical attention and appropriate follow-up.

### 5. Fire Fighting Measures:

- **Suitable extinguishing agents:** The product is non-flammable.
- **Protective equipment:** No special measures required.

### 6. Accidental Release Measures:

- **Person-related safety precautions:** Use standard laboratory practices including proper personal protective equipment.
- **Measures for environmental protection:** N/A.
- **Measures for containment and cleaning:**



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- Absorb liquid components with liquid-binding material.
- Pick up mechanically.
- Dispose contaminated material as waste according to item 13.
- **Additional information:** No dangerous substances are released.

### 7. Handling and Storage:

- **Precautions for safe handling:** No special measures required. No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage:** None, according to product specifications.

### 8. Exposure Controls and Personal Protection:

- **Control parameters:** None known.
- **Appropriate engineering controls:** Follow usual standard laboratory practices. The following personal protection is recommended:
  - Gloves made of latex, nitrile rubber, e.g.
  - Safety glasses
  - Protective work clothing.

### 9. Physical and Chemical Properties:

- **Appearance:**
- **Odor:** Little to none.
- **pH:** Neutral
- **Melting point/freezing point:** Undetermined.
- **Boiling point/Boiling range:** Undetermined.
- **Flash point:** No data.
- **Evaporation rate:** Undetermined.
- **Flammability:** No data.
- **Vapor pressure/density:** No data.
- **Relative Density:** Undetermined.
- **Solubility in/Miscibility with Water:**
- **Auto igniting:** Product is not self igniting.
- **Viscosity:** Undetermined.

### 10. Stability and Reactivity:

- **Reactivity:** This product contains low concentrations of Sodium Azide <0.1% (w/w). Sodium Azide can form explosive compounds with heavy metals which, with repeated contact with lead and copper commonly found in plumbing drains may result in the build up of shock sensitive compounds.
- **Chemical Stability:** Stable under normal ambient and storage and handling temperatures.
- **Thermal decomposition/conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials to be avoided:** Metals and metallic compounds.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11. Toxicological Information:

- **Acute toxicity:** No toxic effect known.
- **Skin irritant effect:** No irritant effect known.
- **Eye irritant effect:** No irritant effect known.
- **Sensitization:** No sensitizing effects known.
- **Mutagenicity:** No effect known.



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- **Carcinogenicity:** No effect known.
- **Reproductive toxicity:** No toxic effect known.
- **Additional toxicological information:** The product is not subject to classification according to the latest edition of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS): When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

### 12. Ecological Information:

- **Ecotoxicity:** Undetermined.
- **Biodegradability:** Undetermined.
- **Mobility:** Undetermined.

### 13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.

### 14. Transport Information:

- **UN Number:** None
- **DOT regulations:** · **Hazard class:** None
- **Land transport ADR/RID (cross-border):** Not regulated.
- **Maritime transport IMDG:** Not regulated.
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:** Not regulated.
- **Transport/Additional information:** Not dangerous according to the above specifications.

### 15. Regulations:

#### US Federal and State Regulations

- **CERCLA/SARA 302:** Sodium Azide is listed.
- **CERCLA/SARA 304:** Sodium Azide is listed.
- **SARA 313:** Sodium Azide is listed.
- **TSCA (Toxic Substances Control Act):** Sodium Azide is listed.
  - **California Proposition 65:** Sodium Azide is not listed on California's listing of known or potential carcinogens.

#### EU Labeling Classification

This product is not classified.

#### Canada

This product is exempt from WHMIS requirements.

### 16. Other Information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

## 2. Hazards Identification

- **Stock Solution Contains:** 1N Hydrochloric Acid
- **Hazard Description:**
- **NFPA ratings (scale 0-4)**
  - Health = 3
  - Fire = 0



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Reactivity = 2

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- **Routes of exposure:** • Inhalation • Ingestion • Skin
- **Classification:** C: R21, Xi: R34, R36/37/38, Xn: R20/21/22
- **National Exposure Standard Value:** TWA – 7.5 mg/m<sup>3</sup> STEL-Peak Limitation
- **Special Hazards:** N/A
- **Australian Regulatory Information:** Hazard Classification: Hazardous Substance. Non-Dangerous Goods.
- **Emergency overview:** —

### 3. Information on Ingredients:

- **Contains:** 1N Hydrochloric Acid (Stop Solution 895004)
- **Content %:** 8.62
- **CAS No.:** 7647-01-0
- **Classification:** C: R21, Xi: R34, R36/37/38, Xn: R20/21/22
- **EINECS:**

### 4. First Aid Measures

- **General Information:** No special measures required. If swallowed DO NOT induce vomiting; if conscious, give water, milk or milk of magnesia. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothes before reuse. No special means to provide specific and immediate treatment is needed at the workplace. No immediate medical attention is required.
- 
- **Information for Doctor:** Show this MSDS.

### 5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use Dry Chemical or Carbon Dioxide. DO NOT use water.
- **Protective equipment:** This is a laboratory use product for which no industrial protective equipment has been designated.

### 6. Accidental Release Measures:

- **Person-related safety precautions:** Wear protective clothing.
- **Measures for containment and cleaning:**  
Neutralize spill with soda ash or lime. Carefully place material into a spill control container and remove from area.  
Flush spill area with water.
- **Measures for environmental protection:** N/A.
- **Additional information:** No dangerous substances are released. **If appropriate refer to sections 8 and 13.**

### 7. Handling and Storage:

- **Information for Safe Handling:** DO NOT get in eyes, on skin or on clothing. DO NOT breathe vapor. Wash thoroughly after handling.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for Safe Storage:** Store at 2 - 8° C. Keep in a tightly closed container. Store separately and away from flammable and combustible materials.





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### 8. Exposure Controls and Personal Protection:

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal Protective Equipment**
- **General protective and hygienic measures** Keep away from food, beverages and animal feed.
- **Breathing equipment:** Recommended, although not required if good ventilation is maintained.
- **Protection of hands:** Industrial chemical resistant gloves (Nitrile or Neoprene)
- **Eye protection:** Safety glasses      **Body protection:** Lab Coat
- **Engineering Controls(specify, EG, Ventilation, Enclosed process):** Use with adequate ventilation.

### 9. Physical and Chemical Properties:

- **Form or Appearance:** Liquid
- **Color:** Clear, Colorless solution
- **Odor:** Little to none.
- **pH:** 0.3 (1N Solution)
- **Change in Condition:** Undetermined.
- **Melting point/freezing point:** Undetermined.
- **Boiling point/Boiling range:** Undetermined.
- **Flash point:** No data.
- **Danger of Explosion:** N/A
- **Evaporation rate:** Undetermined.
- **Flammability:** No data.
- **Vapor pressure/density:** No data.
- **Relative Density:** Undetermined.
- **Solubility in/Miscibility with Water:**
- **Auto igniting:** Product is not self igniting.
- **Viscosity:** Undetermined.

### 10. Stability and Reactivity:

- **Reactivity:** Incompatible with water and strong bases.
- **Chemical Stability:** Stable under normal ambient and storage and handling temperatures.
- **Thermal decomposition/conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials to be avoided:** Heat, moisture, incompatibles.
- **Hazardous decomposition products:** No dangerous decomposition products known.
- **Stability:** Product is stable.

### 11. Toxicological Information:

- **Acute toxicity:** Contact with skin or eyes may cause severe irritation or burns. Vapors may be irritating to eyes, nose and throat.  
▶ **Poison. May be fatal if swallowed. Causes Burns.** ◀
- **Skin irritant effect:** N/A
- **Eye irritant effect:** N/A
- **Sensitization:** N/A
- **Mutagenicity:** N/A
- **Carcinogenicity:** N/A
- **Reproductive toxicity:** N/A
- **Additional toxicological information:** N/A





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### 12. Ecological Information:

- **Ecotoxicity:** Undetermined.
- **Biodegradability:** Undetermined.
- **Mobility:** Undetermined.

### 13. Disposal Considerations:

- **Disposal methods:** Dispose in accordance with all applicable federal, state, EU and local environmental regulations relating to waste.

### 14. Transport Information:

- **UN Number:** None
- **DOT regulations:** - **Hazard class:** None
- **Land transport ADR/RID (cross-border):** Not regulated.
- **Maritime transport IMDG:** Not regulated.
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:** Not regulated.
- **Transport/Additional information:** Not dangerous according to the above specifications.

### 15. Regulations:

**Product Related Hazard Information:** The substance is not subject to classification according to the sources of literature known to us. Observe the general safety regulations when handling chemicals. The product is not subject to identification regulations pertaining to regulations on hazardous materials.

#### Safety Phrases:

- 13 – Keep away from food, drink and animal feed.
- 28 – After contact with skin, wash immediately with plenty of soap and water.
- 37/39- Wear suitable gloves and eye/face protection.
- 56 – Dispose of this material and its container at hazardous or special waste collection point.

#### US Federal and State Regulations

- **CERCLA/SARA 302:** This product does not contain chemicals having a Reportable Quantity (RQ).
- **CERCLA/SARA 304:** This product does not contain chemicals having a Reportable Quantity (RQ).
- **SARA 311/312:** May be subject to reporting.
- **SARA 313:** Not subject to reporting
- **TSCA (Toxic Substances Control Act):** This product is exempt under TSCA.
- **California Proposition 65:**
- 

#### EU Labeling Classification

This product is not classified.

#### Canada

This product is exempt from WHMIS requirements.

**Classification according to VbF:** Void

**Water Hazard Class:** Generally not hazardous for water.

**Classification:** Corrosive, Irritant, Harmful

**Risk Phases:** R21 – Harmful in contact with skin. R20/21/22 – Harmful in contact with skin and if swallowed. R34 – Causes burns.

R36/37/38 – Irritating to eyes, respiratory system and skin.

**Hazard Ingredient:** Hydrochloric Acid

**Product Use/Sale restrictions:** For Research Use Only – Read instructions for use before using the product.

**HSCC Code:** 3822 00 00



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### 16. Other Information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Risk Phases: R21 – Harmful in contact with skin. R20/21/22 – Harmful in contact with skin and if swallowed. R34 – Caused burns. R36/37/38 – Irritating to eyes, respiratory system and skin.

### 2. Hazard Identification:

▪ **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]**

**Color Reagent B: 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

All other components are non-hazardous.

▪ **Signal Word:** WARNING; DANGER

▪ **Hazard statements:** H315 Causes skin irritation. H319 Causes serious eye irritation. 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 fumes. P264 Wash hands thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only in a well-ventilated area. P280 Wear protective gloves and protective clothing. P281 Use of personal protective equipment is required.

IF SWALLOWED: Call a poison control center or doctor if you feel unwell.

IF ON SKIN: Wash with plenty of soap and water. Call a poison control center. Wash contaminated clothing before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison control center or doctor/physician if you feel unwell.

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

IF EXPOSED OR CONCERNED: Get medical advice/attention.

▪ **Potential Health Effects:**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** May be harmful if swallowed.

▪ **Classification according to Directive 67/548/EEC:** May cause harm to the unborn child. Harmful by inhalation, and in contact with skin. Irritating to eyes.

▪ **Hazard Symbol:**

T: Toxic

Repr.Cat.2: Reproductive toxins

Xi: Irritant

▪ **R-Phrase:** R61 May cause harm to unborn child, R20/21 Harmful by inhalation and in contact with skin, R36/37/38 Irritating to eyes, respiratory system and skin.

▪ **S-Phrase:** S26 in case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37 Wear suitable protective clothing and gloves. S45 In case of accident or if you feel unwell, seek medical advice immediately. S53 Avoid exposure – obtain special instructions before use.

▪ **Other hazards:** Rapidly absorbed through skin.



### 3. Information on Ingredients:

Description: Tetramethylbenzidine in a Proprietary Buffer

Contains	CAS No.	EC-No.	Index-No.	Content
Proprietary Buffer	NA	NA	NA	>99%
Tetramethylbenzidine	54827-17-7	259-364-6	NA	<0.05%



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### 4. First Aid Measures:

- **Consult a physician** – Show this MSDS to the doctor in attendance.
- **If Inhaled:** 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 15 minutes. Consult a physician.
- **If swallowed:** DO NOT INDUCE VOMITING. 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:** To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

### 5. Fire Fighting Measures:

- **Suitable extinguishing agents:** 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.
- **Hazards from the substance or mixture:** Carbon oxides, Nitrogen oxides(NOx)
- **Special precautions for fire-fighters:** Self contained breathing apparatus and full protective clothing must be worn in case of fire. Use water spray to cool unopened containers.

### 6. Accidental Release Measures:

- **Person-related safety precautions:** Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- **Measures for environmental protection:** Prevent further leakage or spillage if safe to do so. Do not let enter drains.
- **Measures for containment and cleaning:** 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.

### 7. Handling and Storage:

- **Precautions for safe handling:** Avoid exposure, obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapor and mist. Keep away from origins of ignition. No smoking. Take measures to prevent the build up of electrostatic charge.
- **Conditions for safe storage:** Store in a cool place. Keep container tightly closed in a dry, well ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### 8. Exposure Controls and Personal Protection:

- **Component:** Tetramethylbenzidine – Not an occupational hazard at these levels.
- **Component:** Proprietary buffer  
**UK EH40 WEL – Workplace Exposure Limits:** **Value:** STEL, 20 ppm, 61 mg/m<sup>3</sup>. **Value:** TWA, 10 ppm, 30 mg/m<sup>3</sup>. Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.
- **Appropriate engineering controls:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
- **Individual protection measures:** Wash hands thoroughly after handling chemical products and before eating, smoking or using the toilet. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.
  - **Eye/face protection:** Wear approved safety goggles.
  - **Skin/hand protection:** Handle with protective gloves, plastic or rubber. 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.



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**Respiratory protection:** In case of inadequate ventilation, use a suitable respirator. 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).

### 9. Physical and Chemical Properties:

- |   |  |
|---|--|
| ▪ <b>Appearance:</b> Liquid                                   | <b>Upper/lower flammability or explosive limits:</b> Not available |
| ▪ <b>Odor:</b> Not available                                  | <b>Vapor density :</b> Not available                               |
| ▪ <b>Odor threshold:</b> Not available                        | <b>Vapor pressure:</b> Not available                               |
| ▪ <b>pH:</b> Not available                                    | <b>Relative density:</b> Not available                             |
| ▪ <b>Melting point/freezing point:</b> Not available.         | <b>Boiling point/Boiling range:</b> Not available                  |
| ▪ <b>Partition coefficient: noctanol/water:</b> Not available | <b>Auto igniting:</b> Not available                                |
| ▪ <b>Flash point:</b> Not available                           | <b>Decomposition temperature:</b> Not available                    |
| ▪ <b>Water solubility:</b> Not available                      | <b>Viscosity:</b> Not available                                    |
| ▪ <b>Evaporation rate:</b> Not available                      |  |
| ▪ <b>Flammability (solid, gas):</b> Not available             |  |

### 10. Stability and Reactivity:

- **Reactivity:** No data available
- **Chemical Stability:** No data available
- **Possibility of hazardous reactions:** No data available
- **Conditions to avoid:** Heat, flames, sparks
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** No data available

### 11. Toxicological Information:

- **Acute toxicity:** no data available
- **Skin corrosion/irritation:** no data available
- **Serious eye damage/irritation:** no data available
- **Respiratory or skin sensitization:** no data available
- **Germ cell mutagenicity:** Genotoxicity in vitro – mouse – lymphocyte, Mutation in mammalian somatic cells.
- **Carcinogenicity:** Not classified to its carcinogenicity based on its IARC, ACGIH, NTP or EPA classification at levels less than 0.1%.
- **Reproductive toxicity:** May cause congenital malformation in the fetus. Presumed human reproductive toxicant.
- **Specific target organ toxicity (STOT) -single exposure:** No data available
- **Specific target organ toxicity (STOT) -repeated exposure:** No data available
- **Aspiration hazard:** No data available
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
  - Inhalation:** Toxic if inhaled. May cause respiratory tract irritation.
  - Ingestion:** May be harmful if swallowed.
  - Skin contact:** May be harmful if absorbed through skin. May cause skin irritation.
  - Eye contact:** Causes serious eye irritation.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:** No data available.

### 12. Ecological Information:

- **Ecotoxicity:** No data available.
- **Biodegradability:** No data available.
- **Bioaccumulative potential:** No data available.
- **Mobility in soil:** No data available.
- **Other adverse effects:** No data available.

### 13. Disposal Considerations:



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- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations. Contact a licensed professional waste disposal service to dispose of this material.
- **Contaminated packaging:** Dispose in the same manner as unused product.

### 14. Transport Information:

▪ **ADR/RID ADN/ADNR IMDG IATA/DOT**

ADR/DOT/:	UN Number:	UN1993
RID	Proper Shipping Name:	Flammable liquid, n.o.s. (Proprietary Buffer Mixture)
	Hazard class:	3
	Packing group:	III

IATA:	UN Number:	UN1993
	Proper Shipping Name:	Flammable liquid, n.o.s. (Proprietary Buffer Mixture)
	Hazard class:	3
	Packing group:	III

IMDG:	UN Number:	UN1993
	Proper Shipping Name:	Flammable liquid, n.o.s. (Proprietary Buffer Mixture)
	Hazard class:	3
	Packing group:	III
	Marine Pollutant:	No

### 15. Regulations:

▪ **US Federal and State Regulations**

**CERCLA/SARA 302:** None of the components are listed.

**CERCLA/SARA 304:** None of the components are listed.

**SARA 313:** Proprietary Buffer is listed.

**TSCA (Toxic Substances Control Act):** Proprietary Buffer and Tetramethylbenzidine are listed.

**California Proposition 65:** None of the components are listed on California's listing of known or potential carcinogens.

▪ **EU Labeling Classification**

Labeling conforms with EU regulations.

### 16. Other Information:

- **Notice to reader:** To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

The information on this Material Safety Data Sheet is based on the following references: Directive 1999/45/EC Of The European Parliament And Of The Council of 31 May, 1999, US Occupational Safety and Health Administration Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, R&D Systems does not assume any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Recommended uses and restrictions: Follow instructions provided with the product.

Department issuing the MSDS: QA/RA

Contact: QA/RA