Safety Data Sheet

Product Name: Anti-Rat HRP-DAB Cell & Tissue Staining Kit

Reviewed on: 11 April 2012

1. Identification of Substance:

- **GHS Product identifier:** Anti-Rat HRP-DAB Cell & Tissue Staining Kit
  Components: Peroxidase Blocking Reagent, Avidin Blocking Reagent (contains <= 0.1% Sodium azide), Biotin Blocking Reagent (contains <= 0.1% Sodium azide), Vial A Secondary Biotinylated Antibodies (contains 0.1% Sodium azide), Vial B High Sensitivity Streptavidin-HRP Conjugate (HSS-HRP), DAB Chromogen (contains 3,3'-Diaminobenzidine and Hydrochloric acid), DAB Chromogen Buffer, Serum Blocking Reagent G (contains < 0.1% Sodium azide), Serum Blocking Reagent D.
- **Other means of identification: Catalog Number: CTS017**
- **Application of the substance / the preparation:** N/A
- **Manufacturer/Supplier:**
  R&D Systems Inc.
  614 McKinley Place N.E.
  Minneapolis, MN 55413 USA
- **For product related questions call:** 1-800-343-7475. In Europe call: +44(0)1235-529449.
- **Emergency information:** In case of a chemical emergency, spill, leak, fire, or accident call **CHEMTREC** at 1-800-424-9300 (US or Canada). Outside USA and Canada: +1 703-527-3887 (collect calls accepted).

2. Hazards Identification:

- **Classification: Regulation (EC) No 1272/2008 [EU-GHS/CLP]: 3,3'-Diaminobenzidine (DAB) Chromogen**
  Carcinogenicity, 1B
  Germ Cell Mutagenicity, 2

  Signal Word: DANGER

- **Hazard Statements:** H341: Suspected of causing genetic defects. H350: May cause cancer.
- **Precautionary Statements:** P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P280: Wear protective gloves/protective clothing/eye protection/face protection.
- **Response:** P308 + P313 IF exposed or concerned: Get medical advice/attention.

- **Classification according to EU Directives 67/548/EEC or 1999/45/EC:** T: Toxic, Xi: Irritant.
- **R-phrases:** R45: May cause cancer. R68: Possible risk of irreversible effects. R36-Irritating to eyes, R37-Irritating to respiratory system, R38-Irritating to skin.
- **S-phrases:** S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible). S53: Avoid exposure – obtain special instructions before use. S26, In case of contact with eyes, rinse immediately with plenty of water and see medical advice.
- **Special Hazards:** none.

3. Information on Ingredients:

- **Description: 3,3'Diaminobenzidine (DAB) Chromogen**

Contains	CAS No.	EC-No.	Index-No.	Content
3,3' Diaminobenzidine	91-95-2	202-110-6	612-239-00-3	<5%
Hydrochloric Acid	7647-01-0	231-595-7	017-002-01-X	<5% (Not a hazardous substance at this concentration)

4. First Aid Measures:

- **After inhalation:** Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- **After skin contact:** Wash off with soap and plenty of water. Take victim immediately to a hospital. Consult a physician.
- **After eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Show this MSDS.

- **After swallowing:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Call a physician. Show this MSDS.
- **Most important symptoms and effects, both acute and delayed:** Unknown
- **Indication of any immediate medical attention and special treatment needed:** No data available

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Special hazards arising from the substance or mixture:** Carbon oxides, nitrogen oxides.
- **Protective equipment:** Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- **Further information:** no data available

6. Accidental Release Measures:

- **Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation, Avoid breathing vapors, mist, dust or gas. Evacuate personnel to safe areas.
- **Environmental precautions:** Do not let product enter drains.
- **Methods and materials for containment and cleaning up:** Pick up and arrange disposal without creating dust. Sweep up and shovel. Absorb spill with inert material, then place in a suitable container. Contain spillage, and then collect for disposal according to local regulations.

7. Handling and Storage:

- **Precautions for safe handling:** Avoid contact with eyes and skin. Avoid formation of dust or aerosols. Obtain special instructions before use. Provide adequate exhaust ventilation at places where dust is formed.
- **Conditions for safe storage, including incompatibilities:** Keep container tightly closed and store in a well-ventilated place. Store locked up. Light sensitive.

8. Exposure Controls and Personal Protection:

- **Control parameters:** Contains no substances with known exposure limits.
- **Appropriate engineering controls:** Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling product.

  Personal Protective Equipment:
  Eye and Face Protection: Safety goggles. Face shield.
  Skin Protection: Handle with gloves. Gloves must be inspected prior to use. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
  Body Protection: Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
  Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use full-face respirator.

9. Physical and Chemical Properties:

- **Appearance:** Liquid
- **Odor:** Not available
- **Odor threshold:** Not available
- **pH:** Not available
- **Melting point/freezing point:** Not available
- **Partition coefficient: noctanol/water:** Not available
- **Flash point:** Not available
- **Water solubility:** Not available
- **Evaporation rate:** Not available
- **Flammability (solid, gas):** Not available

Upper/lower flammability or explosive limits: Not available
Vapor density : Not available
Vapor pressure: Not available
Relative density: Not available
Boiling point/Boiling range: Not available
Auto igniting: Not available
Decomposition temperature: Not available
Viscosity: 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:** Light
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** No data available

11. Toxicological Information:

- **Acute toxicity:** Rat oral – LD50 = 3,000 mg/kg; mouse oral – LD50 = 1834 mg/kg
- **Skin corrosion/irritation:** Can cause burns of the skin and mucous membranes.
- **Serious eye damage/irritation:** Can cause burns, reduced vision or blindness.
- **Respiratory or skin sensitization:** no data available
- **Germ cell mutagenicity:** Mutagenic effects.
- **Carcinogenicity:** Rat – oral: tumorigenic, skin and appendages.
- **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. Causes respiratory tract irritation.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
  Inhalation: May be harmful 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: May cause eye irritation.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:** no data available.
- **Effects of chronic exposure:** no data available
- **Numerical measures of toxicity:** no data available
- **Other Information:** RTECS: DV8750000

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:

- **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 spilt 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.

15. Regulations:

- **US Federal and State Regulations**
  TSCA (Toxic Substances Control Act): 3,3' Diaminobenzidine and Hydrochloric acid are listed.
  SARA 313: 3,3' Diaminobenzidine is not listed. Hydrochloric acid (acid aerosol) is listed.
  SARA 311/312 Hazards: 3,3' Diaminobenzidine: Chronic health hazard. Hydrochloric acid: Acute Health Hazard.
  CERCLA Reportable Quantity: 3,3' Diaminobenzidine is not listed. Hydrochloric acid: 5,000 lbs.
  California Proposition 65: 3,3' Diaminobenzidine and Hydrochloric acid are not listed on California's listing of known or potential carcinogens.

16. Other Information:

- **R-phrases:** R45: May cause cancer. R68: Possible risk of irreversible effects. R36-Irritating to eyes, R37-Irritating to respiratory system, R38-Irritating to skin.
- **S-phrases:** S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible). S53: Avoid exposure – obtain special instructions before use. S26, In case of contact with eyes, rinse immediately with plenty of water and see medical advice.

- **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: Regulation (EC) No. 1272/2008 [CLP/GHS]**: **Sodium Azide (0.1%)**
  Aquatic Chronic 3
- **Hazard Symbol:** none
- **Signal Word:** none

- **Hazard Statement(s):** H412 Harmful to aquatic life with long lasting effects.
- **Precautionary Statement(s):** P273: Avoid release to the environment.
- **Response:**
  - **Special Hazards:** N/A
  - **Routes of exposure:** Inhalation; ingestion or skin.
    IF EXPOSED OR CONCERNED: Get medical advice/attention.
- **Classification according to Directive 67/548/EEC:** Xn: Harmful.
- **R-phrases:** R22: Harmful if swallowed. R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **S-phrases:** S61 Avoid release to the environment. Refer to special instructions/safety data sheet.
- **Other Hazards:** none

3. Information on Ingredients:

Contains	EINECS	CAS No.	Content %
Sodium Azide	247-852-1	26628-22-8	0.1%

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. Immediately seek medical attention and appropriate follow-up.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Any means suitable for extinguishing the surrounding area.
- **Specific hazards arising from the chemical:** Dangerous decomposition is not anticipated.
- **Protective equipment:** Wear appropriate protective clothing and a self-contained breathing apparatus if necessary.

6. Accidental Release Measures:

- **Person-related safety precautions:** Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
- **Measures for environmental protection:** Prevent further spillage or leakage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- **Measures for containment and cleaning:** Absorb liquid components with inert liquid-binding material. Pick up mechanically. Dispose contaminated material as waste according to item 13.

7. Handling and Storage:

- **Precautions for safe handling:** Store in a well ventilated place. Keep container tightly closed.
- **Information about protection against explosions and fires:** Normal measures for preventive fire protection.
- **Conditions for safe storage:** Store in a cool place. Keep container tightly closed in a dry and well ventilated place.

8. Exposure Controls and Personal Protection:

- **Components: Sodium Azide**
  UK. EH40 WEL- Workplace Exposure Limits: Value: STEL 0.3 mg/m^3 (15 min.). TWA 0.1 mg/m^3; UK.

- **Appropriate engineering controls:** Follow usual standard laboratory practices. The following personal protection is recommended:

Respiratory Protection:	Respiratory Protection not required. For nuisance exposures use respirators and components approved under appropriate government standards.
Hand Protection:	Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Eye Protection:	Use equipment for eye protection tested and approved under appropriate government standards.
Skin and Body Protection:	Use impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Hygiene Measures:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

9. Physical and Chemical Properties:

- **Appearance:** Lyophilized white powder or clear liquid.
- **Odor:** Little to none
- **Odor threshold:** Not available
- **pH:** Not available
- **Melting point/freezing point:** Not available.
- **Boiling point/Boiling range:** Not available.
- **Flash point:** Not available.
- **Evaporation rate:** Undetermined.
- **Flammability:** Not available.

Upper/lower flammability or explosive limits: Not available.
Vapor pressure/density: Not available.
Relative Density: Not available.
Solubility in/Miscibility with Water: Not available.
Partition coefficient: noctanol/water: Not available
Auto igniting: Product is not self igniting.
Decomposition temperature: Not available.
Viscosity: Not available.

10. Stability and Reactivity:

- **Reactivity:** 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 buildup 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:** Hazardous decompositions formed under fire conditions. No dangerous decomposition products known.

11. Toxicological Information:

- **Acute toxicity:** **Oral LD50 Oral:** 27 mg/kg (mouse and rat); **Inhalation LD50**: 32 mg/m3 (mouse) and 37 mg/m3 (rat); **Skin LD50:** 20 mg/kg (rabbit) and 50 mg/kg (rat)
- **Skin corrosion / irritation:** May be harmful if absorbed through the skin. May cause skin irritation.
- **Serious eye damage / irritation:** May cause eye irritation.
- **Respiratory or skin sensitization:** No sensitizing effects known.
- **Germ cell mutagenicity:** No effect known.
- **Carcinogenicity:** No effect known.
- **Reproductive toxicity:** No toxic effect known.
- **STOT-single exposure:** Data not available
- **STOT-repeated exposure:** Data not available.
- **Aspiration hazard:** May be harmful if inhaled. May cause respiratory tract irritation.
- Additional Information: RTECS: Not available

12. Ecological Information:

- **Ecotoxicity:** Harmful to aquatic life. LC50, 96 Hrs, Fish Lepomis macrochirus - 0.68 mg/L; EC50, 48 Hrs, Daphnia pulex - 4.2 mg/L
- **Persistence and degradability:** No data available
- **Bioaccumulative potential:** No data available
- **Mobility in soil:** Sodium azide is soluble in water.
- **Other adverse effects:** Sodium azide is toxic to aquatic organisms and may cause long term adverse effects in the aquatic environment.

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 spilt 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.

15. Regulations:

- **US Federal and State Regulations**
  TSCA (Toxic Substances Control Act): Sodium Azide is listed.
  SARA 313: Sodium Azide is listed.
  SARA 311/312 Hazards: Acute Health Hazard
  CERCLA Reportable Quantity: 1000 lbs.
  California Proposition 65: Sodium Azide is not listed on California's listing of known or potential carcinogens.

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: Sodium Azide <0.1%**. Not hazardous at this concentration. The classification was made according to the latest edition of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
- **Special Hazards:** N/A
- **Routes of exposure:** Inhalation; ingestion or skin.
  IF EXPOSED OR CONCERNED: Get medical advice/attention.

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:**
  -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:** Store 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:** Lyophilized white powder or clear liquid.
- **Odor:** Little to none
- **Odor threshold:** Not available
- **pH:** Not available
- **Melting point/freezing point:** Not available.
- **Boiling point/Boiling range:** Not available.
- **Flash point:** Not available.
- **Evaporation rate:** Undetermined.
- **Flammability:** Not available.

Upper/lower flammability or explosive limits: Not available.
Vapor pressure/density: Not available.
Relative Density: Not available.
Solubility in/Miscibility with Water: Not available.
Partition coefficient: noctanol/water: Not available
Auto igniting: Product is not self igniting.
Decomposition temperature: Not available.
Viscosity: Not available.

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 buildup 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.
- **Carcinogenicity:** No effect known.
- **Reproductive toxicity:** No toxic effect known.
- **Additional toxicological information:** 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.
- **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 spilt 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.

15. Regulations:

- **US Federal and State Regulations**

  TSCA (Toxic Substances Control Act): Sodium Azide is listed.
  SARA 313: Sodium Azide is listed.
  SARA 311/312 Hazards: Acute Health Hazard
  CERCLA Reportable Quantity: 1000 lbs.
  California Proposition 65: Sodium Azide is not listed on California's listing of known or potential carcinogens.

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.