1. Information on the Substance/Preparation and Company

1.1 Catalog # 40-300500.v2
Product name Thyretain™ Reaction Buffer

1.2 Company Diagnostic HYBRIDS, Inc.
1055 East State Street, Suite 100
Athens, OH  45701, USA
(740) 589-3300 or (866) 344-3477

1.3 In emergencies Call your local emergency center

2. Components and Hazardous Ingredients

<table>
<thead>
<tr>
<th>Hazardous Ingredients</th>
<th>Classification Substances</th>
<th>EINECS Nr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin</td>
<td>Xi, Xn, R42/43, S:23, 36/37, 45</td>
<td></td>
</tr>
<tr>
<td>Streptomycin</td>
<td>Xn, R22</td>
<td></td>
</tr>
<tr>
<td>[Proprietary ingredients]</td>
<td>[Not applicable]</td>
<td>[Not applicable]</td>
</tr>
</tbody>
</table>

Classification key: Toxic (T); Very toxic (T+); Harmful (Xn); Irritant (Xi); Dangerous for the environment (N); Oxidizing agent (O); Explosive (E); Flammable (F)

3. Hazards Identification

- Penicillin may cause allergic skin reaction, allergic respiratory reaction, slight irritation to the digestive tract, respiratory tract, eyes, and skin.
- Streptomycin is very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.
- Contains non-hazardous quantities of proprietary ingredients [OSHA Regulations (Standards-29CFR) Hazard Communication-1910.1200(i)(1)]

4. First Aid Measures

**Eye contact:**
- Flush eyes immediately with water for 15 minutes, occasionally lifting the upper and lower eyelids
- Consult a doctor/medical service

**Skin contact:**
- Wash with soap
- Rinse with plenty of water
- Consult a doctor/medical service

**After inhalation:**
- Remove the victim into fresh air
- Consult a doctor/medical service

**After ingestion:**
- Consult a doctor/medical service

5. Fire Fighting Measures

**Suitable extinguishing media:**
- All non combustible extinguishing media allowed

**Unsuitable extinguishing media:**
- No data available

**Special exposure hazards:**
- No data available

**Instructions:**
- Take account of contaminated fire fighting water
- Use fire fighting water moderately and contain it

**Special protective equipment for firefighters:**
- No data available
6. Accidental Release Measures

   Personal protection:  See 8, below
   Environmental precautions:  Discharge according to local regulations
   Clean-up:  Take up liquid spill into absorbent material
              Discharge of absorbed material according to local regulations
              Wash clothing and equipment after handling

7. Handling and Storage

   Handling:  If solution is spilled:  take up with an absorbent material; if contact is possible, wear gloves as protection.
              Discharge according to local regulations
              Remove contaminated clothing
              Handle and open the container with care
   Storage:  2°C to 8°C

8. Exposure Controls/Personal Protection

8.1 Exposure Limits

<table>
<thead>
<tr>
<th>Chemical/Component</th>
<th>TLV/NIOSH REL</th>
<th>OSHA PEL</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin</td>
<td>Not determined</td>
<td>Not listed</td>
<td>69-57-8</td>
</tr>
<tr>
<td>Streptomycin</td>
<td>Not determined</td>
<td>Not listed</td>
<td>57-92-1</td>
</tr>
</tbody>
</table>


8.2 Control of Exposure

   Eye protection:  Safety glasses or Face shield
   Hand protection:  Gloves should be waterproof
                    Hands should be washed after working with this product.
   Suitable materials:  Butyl rubber, natural rubber, neoprene, nitrile rubber, polyethylene, PVC
   Skin protection:  Protective clothing
   Respiratory protection:  Area ventilation is generally adequate; avoid generation of dusts, mists or other airborne forms when working with the product
                        Insufficient ventilation:  wear respiratory protection

9. Physical and Chemical Properties

   Clear, aqueous liquid; colorless; odorless

   Note:  Boiling and Freezing Points for all aqueous components are near those of pure water.

10. Stability and Reactivity

    Stability:  All components are stable if stored in specified conditions (see label).
    Reactivity/Hazardous decomposition products:  No hazardous decomposition products are formed in high quantities
    Conditions/Materials to avoid:  Strong oxidizing agents.

11. Toxicological Information

    Acute toxicity:
    Penicillin    LD$_{50}$ oral, rat  6,916 mg/kg
    Streptomycin  LD$_{50}$ oral, rat  430 mg/kg
Chronic toxicity:

<table>
<thead>
<tr>
<th>Product</th>
<th>Target Organ(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin</td>
<td>nerves, kidney, ears</td>
</tr>
<tr>
<td>Streptomycin</td>
<td>skin, eyes, kidneys, ears</td>
</tr>
</tbody>
</table>

Routes of exposure

- Ingestion, inhalation, eyes and skin
- Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals. Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburn-like response to edematous, vesiculated lesions or bullae.

Acute effects/symptoms

- Potential for ototoxicity (vestibular damage, hearing loss and tinnitus) and nephrotoxicity (kidney toxicity).
- May cause skin, eye, and mucous membranes and upper respiratory tract irritation.
- May be harmful if swallowed.

Chronic effects

- May be associated with significant nephrotoxicity and/or ototoxicity.
- The chemical, physical, and toxicological properties have not been thoroughly investigated.

12. Ecological Information

Aquatic toxicity:

<table>
<thead>
<tr>
<th>Product</th>
<th>LC₅₀ (96 h):</th>
<th>EC₅₀ (48 h):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streptomycin</td>
<td>&gt;180 mg/L (Oncorhynchus mykiss; rainbow trout)</td>
<td>650 mg/L (Daphnia magna; water flea)</td>
</tr>
</tbody>
</table>

Toxic to daphnia ad other aquatic invertebrates

Other Information:

- **Effect on the ozone layer:** Not dangerous for the ozone layer (1999/45/EC)
- **Greenhouse effect:** No data available
- **Effect on waste water purification:** No data available

13. Waste Disposal Considerations

**Disposal methods:**

- The reaction buffer may not be considered hazardous waste.
- Dispose of material according to local regulations.

14. Transport Information

**USA:** No restrictions.
**Canada:** No restrictions
**EU:** No restrictions
15. Regulatory Information

Classification according to directives 67/548/EEC and 1999/45/EC

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>Xn</td>
<td>Harmful</td>
</tr>
<tr>
<td>XI</td>
<td>Irritant</td>
</tr>
<tr>
<td>R22</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>R42/43</td>
<td>May cause sensitization by inhalation and skin contact</td>
</tr>
<tr>
<td>R52</td>
<td>Harmful to aquatic organisms</td>
</tr>
<tr>
<td>S23</td>
<td>Do not breathe aerosols</td>
</tr>
<tr>
<td>S36/37</td>
<td>Wear suitable protective clothing and gloves</td>
</tr>
<tr>
<td>S45</td>
<td>In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)</td>
</tr>
</tbody>
</table>

16. Other Information

- Based on: US 29 CFR 1910:1200(g); Canadian Hazardous Product Act, Part II; Directive 911155/EEC et seq.
- This product is designed for use by professionals.
- The above information is believed to be accurate and represents the information available to date, but Diagnostic Hybrids does not purport it to be all-inclusive; this should be used only as a guide.
- Refer to the Product Insert for this Product for additional details on the proper storage, handling, use, and disposal of the reagents included in this Product.
- Contact Diagnostic Hybrids, Inc. if additional information is required.

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