1. IDENTIFICATION OF SUBSTANCE

<table>
<thead>
<tr>
<th>Name:</th>
<th>DUKE PEDIATRIC EYE MIXTURE</th>
</tr>
</thead>
</table>
| Manufacturer: | Department of Pharmacy  
Duke University Medical Center  
Box 3089  
Durham, NC 27710  
919-684-5125 |
| Information Department: | Occupational and Environmental Safety Office  
Duke University Medical Center  
Box 3914  
Durham, NC 27710  
919-684-5996 |
| Emergency Information: | Regional Poison Control Center  
800-848-6946 |

2. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical Characterization/Description:** Phenylephrine hydrochloride (HCl), cyclopentolate HCl, and sodium phosphate solution  
**Synonym(s):** Phenylephrine HCl: Neo-synephrine HCl;  
Cyclopentolate HCl: cyclogyl  
**Dangerous Components (CAS#, Hazardous Chemical, Percent):**

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>61-76-7</td>
<td>Phenylephrine hydrochloride</td>
<td>2.5%</td>
</tr>
<tr>
<td>5870-29-1</td>
<td>Cyclopentolate hydrochloride</td>
<td>1%</td>
</tr>
<tr>
<td>7558-79-4</td>
<td>Sodium phosphate</td>
<td>16-17%</td>
</tr>
<tr>
<td>1310-73-2</td>
<td>Sodium hydroxide (pH adjustment as needed)</td>
<td>Varies</td>
</tr>
<tr>
<td>7647-01-0</td>
<td>Hydrochloric acid (pH adjustment as needed)</td>
<td>Varies</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>Balance</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

**Hazard Description:** Phenylephrine HCl may cause adverse CNS and cardiovascular reactions and is a poison by ingestion, intraperitoneal, subcutaneous, intravenous, and intramuscular routes. Sodium phosphate is a caustic substance that is moderately toxic by intravenous route. (Hazard description based on concentrated constituents; this product is an aqueous solution.)

**NFPA Ratings (scale 0-4):**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Fire</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
</tbody>
</table>
## 4. FIRST AID MEASURES

**Inhalation:**

Remove victim to fresh air. Give oxygen or artificial respiration if necessary.

**Skin Contact:**

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. Seek medical attention if warranted.

**Eye Contact:**

First check the victim for contact lenses and remove if present. Flush victim’s eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim’s eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

**Ingestion:**

DO NOT INDUCE VOMITING.

If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.

If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim’s airway is open, and lay the victim on his/her side with the head lower than the body. Transport the victim IMMEDIATELY to a hospital.
### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Agents:**

Use appropriate extinguishing media for surrounding fire.

**Protective Equipment:**

Self-contained breathing apparatus and protective equipment for fire fighting.

### 6. ACCIDENTAL RELEASE MEASURES

**Personnel Precautions:**

Wear gloves (disposable surgical) and eye protection (chemical splash goggles).

**Environmental Precautions:**

None necessary under normal conditions of use.

**Measures for Cleaning/Collection:**

Use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as contaminated clothing, in a vapor-tight plastic bag for eventual disposal. Wash all contaminated surfaces with a soap and water solution.

### 7. HANDLING AND STORAGE

**Handling:**

Wear PPE when handling this material. Wash hands after handling.

**Storage:**

Store in a cool, dry, well-ventilated location.
TRADE NAME: DUKE PEDIATRIC EYE MIXTURE

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls:
None necessary under conditions of normal use.

Control Parameters:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Limit</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenylephrine hydrochloride</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyclopentolate hydrochloride</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sodium phosphate</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sodium hydroxide Hydrochloric acid</td>
<td>2 mg/m(^3)</td>
<td>ACGIH TLV-Ceiling</td>
</tr>
<tr>
<td></td>
<td>5 ppm</td>
<td>ACGIH TLV-Ceiling</td>
</tr>
</tbody>
</table>

Personal Protective Equipment:

Respiratory Protection
None necessary under conditions of normal use.

Skin Protection
Wear disposable surgical gloves when using this chemical. If this chemical comes into contact with your gloves, or if a tear/puncture develops, remove gloves at once and wash hands.

Eye Protection
Splash-proof safety goggles should be worn while handling this chemical.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Color and Odor: Colorless to yellow, odorless

pH: 5.0

Boiling/Freezing Points (°C):
Approx. same as water.

Flashpoint (°C): N/A

Autoignition Temperature (°C): N/A

Explosion Properties: N/A

Vapor Pressure (mm Hg): N/A

Vapor Density (air = 1): N/A

Specific Gravity (water = 1):
Approx. same as water.

Solubility: Soluble in water (aqueous solution).
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10. STABILITY AND REACTIVITY

General: This product is considered stable.

Materials to Avoid: Acids, acid chlorides, acid anhydrides, butacine, alkalies, ferric salts, and oxidizing agents.

Hazardous Decomposition Products: When heated to decomposition, this product may emit very toxic fumes of POx, Na2O, HCl, and NOx.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Phenylephrine HCl may cause adverse CNS and cardiovascular reactions. It is a poison by ingestion, intraperitoneal, subcutaneous, intravenous, and intramuscular routes and can cause skin irritation. There have been rare reports of serious cardiovascular arrhythmias and myocardial infarctions. The oral LD50 for phenylephrine HCl is 120 mg/kg (mouse). Cyclopentolate HCl is a poison by intravenous and intraperitoneal routes and is moderately toxic by ingestion. Human systemic effects by subcutaneous route include convulsions. Sodium phosphate is a caustic substance that is moderately toxic by intravenous route. It is an irritant to the skin and eyes.

Signs/Symptoms of Overexposure: Headache, reflex bradycardia, excitability, and restlessness have been reported due to overexposure to phenylephrine HCl. Cyclopentolate HCl can cause dilated pupils, blurring of vision, increased heart rate, dry mouth, disorientation, fever, convulsion, and coma.

Chronic Toxicity: This product is not considered a carcinogen by NTP, IARC or OSHA.

12. ECOLOGICAL EFFECTS

None anticipated under normal conditions of use.

13. DISPOSAL CONSIDERATIONS

Dispose of all waste and contaminated materials associated with this chemical as specified by existing local, state and federal regulations concerning hazardous waste disposal. Contact the Occupational and Environmental Safety Office for specific guidance.

14. TRANSPORT INFORMATION

Proper shipping name (DOT): Not regulated by this mode of transportation.

15. REGULATORY INFORMATION

Reported in EPA TSCA Inventory.

16. OTHER INFORMATION

This information is based on our present knowledge; however this shall not constitute a guarantee for any specific product features. No toxicity data are available on this specific formulation; this health hazard assessment is based on information that is available for its components.