MATERIAL SAFETY DATA SHEET: CHEM-AQUA 999

Section I - General Information

Date of Issue: 10/23/2007 12:00:00 AM
Chemical Name & Synonyms: Alkaline Nitrite mixture
Chemical Family: N/A
Supplier Name: CHEM-AQUA, INC
Manufacturer Address: BOX 152170
IRVING, TEXAS 75015
Prepared By: M. MCDONELL/ CHEMIST

Product Code Number: 0376
Emergency Phone Number: 800-424-9300

Section II - Hazardous Ingredients

The hazards presented below are those of the individual components.

<table>
<thead>
<tr>
<th>Chemical Name (Ingredients)</th>
<th>Hazard</th>
<th>TLV</th>
<th>PEL</th>
<th>STL</th>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM NITRITE</td>
<td>TOX/ER</td>
<td>N/E</td>
<td>N/E</td>
<td>N/E</td>
<td>1033-06-0</td>
</tr>
<tr>
<td>SODIUM NITROATE TETRAHYDRATE</td>
<td>IRRITANT</td>
<td>N/E</td>
<td>N/E</td>
<td>N/E</td>
<td>10555-78-7</td>
</tr>
</tbody>
</table>

Section III - Physical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point (°F)</td>
<td>212</td>
</tr>
<tr>
<td>Vapor Pressure (mm Hg)</td>
<td>13.1</td>
</tr>
<tr>
<td>Vapor Density (Air=1)</td>
<td>1.6</td>
</tr>
<tr>
<td>pH</td>
<td>10</td>
</tr>
<tr>
<td>% Volatiles by Volume</td>
<td>84</td>
</tr>
<tr>
<td>% Solubility in Water</td>
<td>Complete</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless to yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Description</td>
<td>Transparent</td>
</tr>
<tr>
<td>Evaporation Rate (Bu/Ac=1)</td>
<td>0.43</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Non-Viscous</td>
</tr>
</tbody>
</table>

Section IV - Fire and Explosion Hazard

Flash Point: >200°F
Flammable Limits: N/A
LEL: N/A

Extinguishing Media:
- [X] Foam
- [X] Alcohol Foam
- [X] CO2
- [X] Water Spray
- [X] Other

Method Used: Getzflash
UL/NFPA: N/A
Aerosol Level (NFPA 308): N/A

NFPA 704 Hazard Rating:
1-Extreme
2-Moderate
3-High
4-Medium
5-Slight
6-Insignificant
7-Minimal
8-None
9-Negative

Section V - Health and Hazard Data

Threshold Limit Value:
Not Established.

Effects of Overexposure:
Acute: (Short Term Exposure)
- Eye contact: Causes irritation seen as tearing, redness, and blurred vision. May cause corneal damage.
- Skin contact: May cause irritation seen as itching and redness.
- Inhalation: May cause respiratory irritation seen as coughing and sneezing. May cause effects similar to ingestion.
- Ingestion: May cause irritation with possible nausea, vomiting, and diarrhea. May cause central nervous system effects such as headache, weakness, faintness, nausea, and low blood pressure and may be fatal.
- Overexposure may cause methemoglobinemia (reduced oxygen carrying capacity of the blood) with cyanosis (bluish discolouration of the skin) progressing to dizziness, incoordination, loss of consciousness, shortness of breath, and increased pulse rate.
- Chronic: (Long Term Exposure)
- Overexposure may cause methemoglobinemia (reduced oxygen carrying capacity of the blood) with cyanosis (bluish discolouration of the skin) progressing to dizziness, incoordination, loss of consciousness, shortness of breath, and increased pulse rate.
- Long-term ingestion produced unspecified pathological changes in the adrenals, brain, heart, kidneys, liver, lungs, and spleen.
- Medical conditions aggravated by exposure are pre-existing respiratory and skin conditions such as asthma, emphysema, and dermatitis; pre-existing liver kidney diseases; varicose veins; blood, central nervous system, heart, kidneys, liver, lungs, and spleen. The primary routes of exposure are skin and eye contact.

Primary Routes of Entry:
- [X] Inhalation
- [X] Ingestion
- Absorption

Emergency First Aid Procedures:

Inhalation:
Remove from the area to fresh air. Seek medical attention if respiratory irritation develops or if breathing becomes difficult.
Rinse the eyes with water. Remove any contact lenses and continue flushing with plenty of water for several minutes. Seek medical attention if irritation develops.

Skin Contact:
Wash affected areas with plenty of soap and water for several minutes. Seek medical attention if irritation develops.

Ingestion:
Give 3 to 4 glasses of water, but do not induce vomiting. If vomiting occurs, give fluids again. Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.

Notes to Physician:
Introduction to the body may lead to the formation of methemoglobin which, in sufficient concentration, causes cyanosis. Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures such as bed rest and oxygen inhalation. Through cleansing of the entire contaminated area of the body including scalp and nails is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, 1 mg/kg of body weight, may be of value. Cyanocobalamin (vitamin B12), 1 mg intramuscularly, will speed recovery. Intravenous fluids and blood transfusions may be indicated in very severe exposures.

**Section VI - Toxicity Information**

<table>
<thead>
<tr>
<th>Product Contains Chemicals Listed as Carcinogen or Potential Carcinogen By:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] IARC</td>
</tr>
<tr>
<td>[ ] NTP</td>
</tr>
<tr>
<td>[ ] OSHA</td>
</tr>
<tr>
<td>[ ] ACGIH</td>
</tr>
<tr>
<td>[ ] Other</td>
</tr>
</tbody>
</table>

VOC content: 0% by weight, 0% by volume, 0 g/L

**SODIUM NITRITE**
- ORL-HMN TDL$_{0}$: 14 mg/kg 4.
- ORL-HMN LD$_{50}$: 71 mg/kg 4.
- ORL-RAT LD$_{50}$: 120 mg/kg 3.
- IHL-RAT LC$_{50}$: 1.45 mg/L/4h 3.
- EYE-RBT SDT: 500 mg/24h mild 4.

**SODIUM METABORATE TETRAHYDRATE**
- ORL-RAT LD$_{50}$: 2330 mg/kg 3.
- SKN LD$_{50}$: >2000 mg/kg (estimated) 3.

Animal feeding studies in rats, mice, and dogs demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse, and rabbit demonstrated developmental effects on the fetus, including fetal weight loss and minor skeletal variations. 3.

**Section VII - Reactivity Data**

<table>
<thead>
<tr>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>[4] Stable</td>
</tr>
<tr>
<td>[ ] Unstable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous Polymerisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[4] Will not occur</td>
</tr>
<tr>
<td>[ ] May occur</td>
</tr>
</tbody>
</table>

Conditions to Avoid:
- Extreme Heat

Incompatibility (Materials to Avoid):
Strong oxidizing agents such as Chlorine bleach and concentrated Hydrogen Peroxide; reducing agents such as metal hydrides or alkali metals. Under certain conditions, nitrates may react with secondary amines to form carcinogenic Nitrosamines.

**Hazardous Decomposition Products:**
- Oxides of Nitrogen and Sodium; Oxygen.

**Section VIII - Spill Or Leak Procedures**

Steps to be Taken if Material is Released or Spilled:
Wear appropriate protective clothing. Use care as spills may be slippery. Shut off source of leak. Dike and contain spill. Absorb with an inert material and transfer all material into a properly labeled container for disposal. Prevent product from contaminating soil or from entering sewage and drainage systems and bodies of water. Flush area with water.

Waste Disposal Method(s):
Dispose of in accordance with all Federal, State, and local regulations.

Neutralising Agent:
Use dilute acids such as Hydrochloric Acid or Vinegar. Add cautiously while mixing. Wear appropriate protective clothing.
Section IX - Special Protection Information

Required Ventilation:
Local ventilation is recommended to control exposure from operations that can generate excessive levels of mists. Local ventilation is preferred, because it prevents dispersion into work areas by controlling it at its source.

Respiratory Protection:
Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA’s respiratory standard (29 CFR 1910.134) and ANSI’s standard for respiratory protection (Z88.2-1992). For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator selection chart found in Publication No. 87-116 or ANSI Z88.2-1992. None required under normal conditions of use.

Glove Protection:
Neoprene or nitrile rubber gloves if repeated or prolonged skin contact is likely. Ensure compliance with OSHA’s personal protective equipment (PPE) standard for hand protection. 29 CFR 1910.138.

Eye Protection:
Safety glasses with side shields if the method of application presents the likelihood of eye contact. Ensure compliance with OSHA’s Personal Protective Equipment (PPE) standard for eye and face protection. 29 CFR 1910.133.

Other Protection:
Wear general-duty work clothes and shoes. A safety shower and an eyewash station should be available.

Section X - Storage and Handling Information

<table>
<thead>
<tr>
<th>Storage Temperature</th>
<th>Storage Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max: 120°F</td>
<td>Indoors</td>
</tr>
<tr>
<td>Min: 35°F</td>
<td>Outdoors</td>
</tr>
<tr>
<td>[Blank]</td>
<td>Heated</td>
</tr>
<tr>
<td>[Blank]</td>
<td>Refrigerated</td>
</tr>
</tbody>
</table>

Precautions to be Taken in Handling and Storing:
Always store material in its original container. Keep container tightly closed when not in use. Keep from freezing. If product freezes, allow it to slowly warm to room temperature and stir thoroughly before using.

Other Precautions:
Keep out of reach of children. Read the entire label before using the product. Follow the label directions.

Section XI - Regulatory Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Upper % Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Nitrate</td>
<td>7612-00-6</td>
<td>25</td>
</tr>
</tbody>
</table>

Those Ingredients listed above are subject to the reporting requirements of 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Please call 1-800-427-9919 for additional information if you are a California customer. This MSDS is not intended for users in the state of California.

Section XII - References

2. OSHA PEL.
3. Vendor’s MSDS.

All the components of this product are in compliance with the Toxic Substances Control Act (TSCA) and are either listed on the TSCA inventory or otherwise exempted from listing.