1. Product Identification

   Synonyms: Azotic acid solutions
   CAS No.: 7697-37-2
   Molecular Weight: 63.00
   Chemical Formula: HNO3 in H2O
   Product Codes:
   J.T. Baker: 5600
   Mallinckrodt: 4739

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>7697-37-2</td>
<td>0.63%</td>
<td>Yes</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt; 99%</td>
<td>No</td>
</tr>
</tbody>
</table>

3. Hazards Identification

   Emergency Overview

   DANGER! CORROSIVE. LIQUID AND MIST CAUSE BURNS TO ALL BODY TISSUE. HARMFUL IF SWALLOWED OR INHALED. VAPOR IRRITATING TO EYES AND RESPIRATORY TRACT. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

   J.T. Baker SAF-T-DATA™ Ratings (Provided here for your convenience)

   Health Rating: 2 - Moderate
   Flammability Rating: 0 - None
   Reactivity Rating: 0 - None
   Contact Rating: 3 - Severe (Corrosive)
   Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
   Storage Color Code: White (Corrosive)

   Potential Health Effects

   Concentrated nitric acid is extremely hazardous; it is corrosive, reactive, an oxidizer, and a poison. The following hazards are for concentrated solutions. Hazards of less concentrated solutions may be reduced. Degree of hazard for reduced concentrations is not currently addressed in the available literature.

   Inhalation:
   Corrosive. Effects should be less severe than from exposure to higher concentrations where symptoms may include irritation of the nose and throat, labored breathing, as well as lung edema, damage to the mucous membranes and upper respiratory tract.

   Ingestion:
   Corrosive. Effects should be less severe than from exposure to higher concentrations where symptoms may include severe burns of the mouth, throat, and stomach, leading to death.

   Skin Contact:
   Corrosive. Effects should be less severe than from exposure to higher concentrations where symptoms may include redness, pain, and burns to the skin.

   Eye Contact:
   Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

   Chronic Exposure:
   Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of the acid.

   Aggravation of Pre-existing Conditions:
   Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.
4. First Aid Measures

**Inhalation:**
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:**
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

**Fire:**
Not considered to be a fire hazard.

**Explosion:**
Not considered to be an explosion hazard.

**Fire Extinguishing Media:**
If involved in a fire, use water spray.

**Special Information:**
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker NEUTRASORB(R) or TEAM(R) "Low Na+" acid neutralizers are recommended for spills of this product.

7. Handling and Storage

Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**
For Nitric Acid:
OSHA Permissible Exposure Limit (PEL):
2 ppm (TWA)

ACGIH Threshold Limit Value (TLV):
2 ppm (TWA); 4 ppm (STEL)

**Ventilation System:**
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**
Not expected to require personal respirator usage. If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Nitric acid is an oxidizer and should not come in contact with cartridges and canisters that contain oxidizable materials, such as activated charcoal. Canister-type respirators using sorbents are ineffective.

**Skin Protection:**
Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

**Eye Protection:**
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.
9. Physical and Chemical Properties

**Appearance:**
Clear, colorless liquid.

**Odor:**
Slight acid odor.

**Solubility:**
Infinitely soluble.

**Specific Gravity:**
No information found.

**pH:**
No information found.

**% Volatiles by volume @ 21C (70F):**
100

**Boiling Point:**
ca. 100C (ca. 212F)

**Melting Point:**
ca. 0C (ca. 32F)

**Vapor Density (Air=1):**
Essentially the same as water.

**Vapor Pressure (mm Hg):**
Essentially the same as water.

**Evaporation Rate (BuAc=1):**
Essentially the same as water.

10. Stability and Reactivity

**Stability:**
Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**
When heated to decomposition, emits toxic nitrogen oxides fumes and hydrogen nitrate.

**Hazardous Polymerization:**
Will not occur.

**Incompatibilities:**
A dangerously powerful oxidizing agent, concentrated nitric acid is incompatible with most substances, especially strong bases, metallic powders, carbides, hydrogen sulfide, turpentine, and combustible organics.

**Conditions to Avoid:**
Heat, incompatibles.

11. Toxicological Information

Investigated as a mutagen, reproductive effector.

---
\Cancer Lists\------------------------------------------------------
---NTP Carcinogen---
Ingredient                             Known    Anticipated    IARC Category
------------------------------------   -----    -----------    -------------
Nitric Acid (7697-37-2)                 No        No           None
Water (7732-18-5)                      No        No           None
---

12. Ecological Information

**Environmental Fate:**
No information found.

**Environmental Toxicity:**
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific
disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

**Domestic (Land, D.O.T.)**

-----------------------

**Proper Shipping Name:** NITRIC ACID (WITH NOT MORE THAN 70% NITRIC ACID)

**Hazard Class:** 8

**UN/NA:** UN2031

**Packing Group:** II

**Information reported for product/size:** 20L

**International (Water, I.M.O.)**

-----------------------

**Proper Shipping Name:** NITRIC ACID (WITH NOT MORE THAN 70% NITRIC ACID)

**Hazard Class:** 8

**UN/NA:** UN2031

**Packing Group:** II

**Information reported for product/size:** 20L

**International (Air, I.C.A.O.)**

-----------------------

**Proper Shipping Name:** NITRIC ACID (WITH NOT MORE THAN 70% NITRIC ACID)

**Hazard Class:** 8

**UN/NA:** UN2031

**Packing Group:** II

**Information reported for product/size:** 20L

15. Regulatory Information

\---\Chemical Inventory Status - Part 1\---

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<th>EC</th>
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\---\Chemical Inventory Status - Part 2\---

--Canada--

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\---\Federal, State & International Regulations - Part 1\---

- SARA 302 - SARA 313 -

<table>
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\---\Federal, State & International Regulations - Part 2\---

- RCRA - TSCA -

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Chemical Weapons Convention: No  TSCA 12(b): No  CDTA: No

SARA 311/312: Acute: Yes  Chronic: Yes  Fire: No  Pressure: No

Reactivity: No  (Mixture / Liquid)

**Australian Hazchem Code:** 2PE
Poison Schedule: S6

WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings:
- Health: 3
- Flammability: 0
- Reactivity: 0

Label Hazard Warning:
DANGER! CORROSIVE. LIQUID AND MIST CAUSE BURNS TO ALL BODY TISSUE. HARMFUL IF SWALLOWED OR INHALED. VAPOR IRRITATING TO EYES AND RESPIRATORY TRACT. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

Label Precautions:
- Do not get in eyes, on skin, or on clothing.
- Do not breathe vapor or mist.
- Keep container closed.
- Use only with adequate ventilation.
- Wash thoroughly after handling.

Label First Aid:
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 clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 3.

Disclaimer:
******************************************************************************
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Prepared by: Strategic Services Division
Phone Number: (314) 539-1600 (U.S.A.)