1. IDENTIFICATION

Product Identifier: IMAGE NO. 186
Other Identifiers: R02370A/R31655
CAS Number: MIXTURE
Recommended Use: No data available.
Restrictions on Use: No data available.

Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI  53008-0948
(262) 792-1450

EMERGENCY RESPONSE NUMBERS:
24 Hour Emergency #: (414) 277-1311
CHEMTREC Emergency #: (800) 424-9300

2. HAZARD(S) IDENTIFICATION

GHS Classification(s):
- Substance or mixture corrosive to metals Category 1
- Skin Corrosion/Irritation Category 1B
- Serious Eye Damage/Eye Irritation Category 1
- Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

GHS Label Elements:

GHS Hazard Symbols:

Signal Word: Danger

Hazard Statements:
- May be corrosive to metals.
- Causes severe skin burns and eye damage.
- May cause respiratory irritation.

Precautionary Statements:

Prevention:
- Keep only in original container.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wash thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.

Response:
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor/physician.
- Specific treatment (see First Aid on SDS or on this label).
- Wash contaminated clothing before reuse.
- Absorb spillage to prevent material damage.

Storage:
- Store in a well-ventilated place. Keep container tightly closed.
- Store in a secure manner.
Store in corrosive resistant container with a resistant inner liner.

Disposal: Dispose of in accordance with local, regional and international regulations.

Hazards Not Otherwise Classified: This product contains nitric acid. Concentrated nitric acid is a strong oxidizer and may cause fire or explosions.

Percentage of Components with Unknown Acute Toxicity:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>35.1 %</td>
</tr>
<tr>
<td>Dermal</td>
<td>35.1 %</td>
</tr>
</tbody>
</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical or Common Name/Synonyms</th>
<th>CAS Number</th>
<th>% by Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>7697-37-2</td>
<td>&lt; 45 %</td>
</tr>
</tbody>
</table>

Note: Any chemical identity and/or exact percentage not expressly stated is being withheld as a trade secret or is due to batch variation.

4. FIRST-AID MEASURES

Description of Necessary Measures:

Eye Contact: If in eyes: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. Remove contact lenses if worn.

Skin Contact: If on skin: Immediately flush skin with plenty of water for at least 15 minutes but preferably 30 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Discard items which cannot be decontaminated.

Inhalation: If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion: If swallowed: If fully conscious, drink a quart of water. DO NOT induce vomiting. CALL A PHYSICIAN IMMEDIATELY. If unconscious or in convulsions, take immediately to a hospital or a physician. NEVER induce vomiting or give anything by mouth to an unconscious victim. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Do not use chemical antidotes or neutralizers.

Most Important Symptoms/Effects, Acute and Delayed:

Eye Contact: CORROSIVE-Causes severe irritation and burns. conjunctivitis. May cause: corneal opacity. permanent eye damage. blindness. The eye is especially sensitive to the corrosive effects and can be destroyed.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated nitric acid chars the tissue with a characteristic yellow colouration. Severe and fatal skin burns can occur with necrosis and scarring.

Skin Absorption: No data available.

Inhalation: CORROSIVE-Causes severe irritation and burns. Gas, vapors or mist cause severe irritation or burns to the upper respiratory system including nose, mouth, throat and mucous membranes. Lung irritation, nitrogen oxide poisoning and pulmonary edema can occur at elevated concentrations (over 200 ppm). Symptoms may include: coughing, sneezing, bronchospasms. dyspnea. chemical pneumonitis. circulatory failure. death. Respiratory effects may be delayed in onset up to 30 hours. Chronic exposure to nitric acid can produce changes in pulmonary function and/or chronic bronchitis. Eye irritation and respiratory symptoms resembling frequent upper respiratory viral infections have also been associated with chronic exposure.


Indication of Immediate Medical Attention and Special Treatment Needed: If inhaled, keep patient under observation for development of latent pulmonary damages (at least 30 hours).
5. FIRE-FIGHTING MEASURES

Extinguishing Media: For fires in area use appropriate media. For example: Water spray. Water (flood with water).

Specific Hazards Arising from the Chemical:

Fire and Explosion Hazards: OXIDIZER. May react with certain metals to form explosive/flammable Hydrogen gas. May react explosively with metallic powders, carbides, hydrogen sulfide and turpentine. Increases the flammability of combustible, organic and readily-oxidizable materials. Can ignite these and many organic materials such as wood, solvents, etc. Refer to NFPA 400 Hazardous Materials Code for further information on oxidizing liquids.

Hazardous Combustion Products: Nitrogen oxides.

Special Protective Equipment and Precautions for Fire-Fighters: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers and disperse vapors. Use flooding amounts of water spray or other suitable agent for fires adjacent to non-leaking tanks or other containers of Nitric Acid. Do not use solid water streams near ruptured tanks or spills. Product generates heat upon addition of water, with possible spattering. Run-off from fire control may cause pollution. Neutralize run-off with Lime, Soda Ash, etc., to prevent corrosion of metals and formation of Hydrogen gas.

6. ACCIDENTAL RELEASE MEASURES


Methods and Materials for Containment and Clean Up: Contain spill, place into drums for proper disposal. Flush remaining area with water and neutralize with Soda Ash, Lime or Limestone and dispose of properly. If soda ash, lime, or limestone is used, carbon dioxide will be emitted. Adequate ventilation required to eliminate any nitrogen oxides emitted. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. Ensure eyewash station and safety shower are near. Keep container dry. Keep away from incompatibles.

Conditions for Safe Storage, Including any Incompatibilities: CORROSIVE MATERIAL. OXIDIZER. Store in a cool, well ventilated area away from all sources of ignition and out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Diking of storage tanks is recommended. Avoid storage on wood floors or near wooden walls, etc..

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>2 ppm TWA; 5 mg/m3 TWA</td>
</tr>
</tbody>
</table>

ACGIH Exposure Guidelines:
Component | Limits
--- | ---
Nitric Acid | 2 ppm TWA; 4 ppm STEL

**Engineering Controls:** Local exhaust ventilation, process enclosures, or other engineering controls are imperative when handling or using this product to avoid overexposure. Avoid creating dust or mist. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

**Individual Protection Measures:**

**Eye/Face Protection:** Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.

**Skin Protection:** Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Acid-proof. Gauntlet-type. Impervious.

**Respiratory Protection:** Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH-Approved full face supplied air respirator for Nitric Acid or Nitrogen Oxide gases or mists. Note: Cartridge or cannister respirators are not suitable for Nitrogen Oxide use. DO NOT USE chemical cartridge respirators with oxidizable sorbants. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

**Other Protective Equipment:** Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Protective clothing. Full-rubber acid suit. NOTE: The above protective equipment is listed for exposure to this product at full strength. When using this product at the recommended use dilution of up to 4 oz/gal, wearing rubber gloves and chemical safety goggles are acceptable precautionary measures.

**General Hygiene Conditions:** Wash with soap and water before meal times and at the end of each work shift.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Liquid.
**Color:** Clear. Red.
**Odor:** No odor.
**Odor Threshold:** N.D.
**pH:** < 2 (as is)
**Freezing Point (deg. F):** N.D.
**Melting Point (deg. F):** N.D.
**Initial Boiling Point or Boiling Range:** N.D.
**Flash Point:** N.A.
**Flash Point Method:** N.A.
**Evaporation Rate (nBuAc = 1):** N.D.
**Flammability (solid, gas):** N.D.
**Lower Explosion Limit:** N.A.
**Upper Explosion Limit:** N.A.
**Vapor Pressure (mm Hg):** N.D.
**Vapor Density (air=1):** N.D.
**Specific Gravity or Relative Density:** 1.219 @ 25C
**Solubility in Water:** Complete
**Partition Coefficient (n-octanol/water):** N.D.
**Autoignition Temperature:** No Data
**Decomposition Temperature:** N.D.
**Viscosity:** N.D.
**% Volatile (wt%):** 100
**VOC (wt%):** 0
**VOC (lbs/gal):** 0
**Fire Point:** N.D.
10. STABILITY AND REACTIVITY

Reactivity: Oxidizer. Avoid other reducing agents, combustibles and organic materials. Corrosive to most metals.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions. May react with certain metals to form explosive/flammable Hydrogen gas. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, carbides, etc. Readily oxidizes combustible, organic or other readily oxidizable materials.

Conditions to Avoid: Unstable with heat; releases toxic gases. Contact with water may cause violent reaction with evolution of heat. To dilute: Add product slowly to lukewarm water; not water to product.


11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Eyes. Skin. Inhalation. Ingestion.

Symptoms/Effects: Acute, Delayed and Chronic:

Eye Contact: CORROSIVE-Causes severe irritation and burns. conjunctivitis. May cause: corneal opacity. permanent eye damage. blindness. The eye is especially sensitive to the corrosive effects and can be destroyed.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated nitric acid chars the tissue with a characteristic yellow colouration. Severe and fatal skin burns can occur with necrosis and scarring.

Skin Absorption: No data available.

Inhalation: CORROSIVE-Causes severe irritation and burns. Gas, vapors or mist cause severe irritation or burns to the upper respiratory system including nose, mouth, throat and mucous membranes. Lung irritation, nitrogen oxide poisoning and pulmonary edema can occur at elevated concentrations (over 200 ppm). Symptoms may include: coughing. sneezing. bronchospasms. dyspnea. chemical pneumonitis. circulatory failure. death. Respiratory effects may be delayed in onset up to 30 hours. Chronic exposure to nitric acid can produce changes in pulmonary function and/or chronic bronchitis. Eye irritation and respiratory symptoms resembling frequent upper respiratory viral infections have also been associated with chronic exposure.


Numerical Measures of Toxicity:

<table>
<thead>
<tr>
<th>Component</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>No Data</td>
<td>No Data</td>
<td>30Min Rat: 138 ppm</td>
</tr>
</tbody>
</table>

Cancer Information:
This product contains 0.1% or more of the following chemicals listed by NTP, IARC or OSHA as known or possible carcinogens:
Acid mists, strong inorganic

Medical Conditions Aggravated by Exposure to Product: Lung disorders. Skin disorders.

Other: Milder exposures can cause irritation of the eyes, skin, mucous membranes and respiratory and digestive tracts. Death due to breathing failure may occur almost immediately or may be delayed several hours to several days depending on severity of exposure. Nitrogen oxide gas may be released if this material is overheated or placed in contact with oxidizing agents. Nitrogen oxides (especially nitrogen dioxide) are toxic by
inhalation. Death may be from sudden circulatory collapse, glottic or esophageal edema, perforation of the stomach, gastric hemorrhage, or delayed stricture.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: NITRIC ACID:
Acute Toxicity to Fish: (A. dispar (freshwater fish)) 96-hr. semistatic - LC50=pH 3.71, (S. gairdneri (rainbow trout) 7-day semistatic LC50=pH - 4.0

Acute Toxicity to Aquatic Plants: (N. palea (diatom)) 28-day growth in lab culture tube - Inhibited growth of diatoms at 6.3 mg/L.

Toxicity to Bacteria: Subartic field study - Total biomass was dependant on pH. Moderately toxic to aquatic organisms based on algae data and on fish data for other acids (i.e., sulfuric acid, phosphoric acid) as defined by USEPA.

Toxicity: Inorganic material. Dangerous to aquatic life in high concentrations. May promote eutrophication in waterways.

Chemical Fate Information: NITRIC ACID:
Environmental Fate:
Stability in Water: Dissociates into its respective ions (H+; NO3-)
Stability in Soil: No data available.
Transport and Distribution: Transportation: Dissolves carbonates; nitrate ions taken up by plants stimulate growth.

Degradation Products:
Biodegradation: No data available.
Photodegradation: Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D002

Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. If approved, neutralize material and flush to sewer. Neutralized waste must be disposed of in accordance with applicable federal, state and local disposal regulations. Waste may have to be disposed of by an approved contractor. If neutralized waste contains water dissociable nitrate compounds in aqueous solution, it is subject to the reporting requirements of SARA Section 313. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORT INFORMATION

DOT (Department of Transportation):

Identification Number: UN2031
Proper Shipping Name: NITRIC ACID
Hazard Class: 8
Packing Group: II
Label Required: CORROSIVE
Reportable Quantity (RQ): 1000# (Nitric Acid).

15. REGULATORY INFORMATION

TSCA Inventory Status: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.
SARA Title III Section 311/312 Category Hazards:
Immediate (Acute)  |  Delayed (Chronic)  |  Fire Hazard  |  Pressure Release  |  Reactive
---|---|---|---|---
Yes | No | Yes | No | No

Regulated Components:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>CERCLA RQ</th>
<th>SARA EHS</th>
<th>SARA 313</th>
<th>U.S. HAP</th>
<th>WI HAP</th>
<th>Prop 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>7697-37-2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Hazard Rating System
Health: 3
Flammability: 0
Reactivity: 1
* = Chronic Health Hazard

NFPA Rating System
Health: 3
Flammability: 0
Reactivity: 0
Special Hazard: OX

SDS Abbreviations
N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
C = Ceiling Limit
N.E./Not Estab. = Not Established

SDS Prepared by: JAK

Reason for Revision: Changes made throughout the SDS.
Revised: 03-09-2017
Replaces: 06-25-2014

The data in this Safety Data Sheet relates to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which HYDRITE CHEMICAL CO. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.