



HazTech Systems, Inc.

SAFETY DATA SHEET

Revision number: 2
Revision date: 05/05/2015

1. IDENTIFICATION

Product name: Nitric acid, reagent, acs
Product code: RE2302
Synonyms: Aqua fortis, Azotic acid, Hydrogen nitrate
Product use: Manufacture of inorganic and organic nitrites and nitro compounds for fertilizers, dye intermediates, explosives. Metallurgy, photo-engraving, etching metals (steel), ore floatation. Urethanes. Rubber chemicals.
Restrictions on use: No information available
CAS: Mixture
RTECS # QU5775000
CI#: Not available

Company:

HazTech Systems, Inc.
4996 Gold Leaf Dr
Mariposa, CA 95338 U.S.A.
Telephone:
1-800-543-5487 / 1-209-966-8088
Fax:
1-209-966-8089
e-mail:
sales@hazcat.com
www.hazcat.com

Chemical Emergencies:

HazTech Systems, Inc. (8:00am - 5:00pm) PST
1-800-543-5487
Transportation Emergencies:
Chemtrec 24-Hour
1-800-424-9300 (U.S.A.)
1-703-527-3887 (International)

2. HAZARD(S) IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Oxidizing liquids	Category 3

Label elements

Danger

Hazard statements

Causes severe skin burns and eye damage
May intensify fire; oxidizer



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing/.? /combustible materials
Take any precaution to avoid mixing with combustibles .?

2. HAZARDS IDENTIFICATION**Precautionary Statements - Response**

Immediately call a POISON CENTER or doctor/physician

Specific treatment (see .? on this label)

Use water to extinguish. Do not use dry chemicals or foams. CO₂ or Halon may provide limited control.

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.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS**4. FIRST AID MEASURES****First aid measures****General Advice:**

Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact:

Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician immediately.

Eye Contact:

Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation:

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. Call a physician immediately.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If victim is conscious, give water or milk. Follow with Milk of Magnesia or egg whites beaten with water. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Most important symptoms and effects, both acute and delayed**Symptoms**

Severe skin and eye irritation or burns. Dyspnea (Shortness of breath and difficulty breathing). Abdominal pain. Vomiting.

Indication of any immediate medical attention and special treatment needed**Notes to Physician:**

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIREFIGHTING MEASURES**Extinguishing Media****Suitable Extinguishing Media:**

Water. CO₂ may be of no value in extinguishing fires involving oxidizers and may only provide limited control. Dry chemical. Foam. Halons.

Unsuitable Extinguishing Media:**Specific hazards arising from the chemical****Hazardous Combustion Products:**

No information available.

5. FIREFIGHTING MEASURES

Specific hazards:

Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.). The product is not flammable, but it may cause fire when in contact with other material. Contact with combustible or organic materials may cause fire. Will accelerate burning when involved in a fire. Container explosion may occur under fire conditions or when heated. Flammable in presence of cellulose or other combustible materials.
Phosphine, hydrogen sulfide, selenide all ignite when fuming nitric acid is dripped into gas.
Phosphine ignites in concentrated nitric acid.
Nickel tetraphosphide ignites with fuming nitric acid.
Contact with metals may evolve flammable hydrogen gas.
A jet of ammonia will ignite nitric acid vapor.
Cellulose may be converted to the highly flammable nitrate ester on contact with the vapor of nitric acid as well as the liquid itself.

Special Protective Actions for Firefighters

Specific Methods:

No information available.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:

Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment

Stop leak if you can do it without risk.

Methods for cleaning up

Neutralize with Sodium carbonate or Sodium bicarbonate. Dilute with water. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Use only in area provided with appropriate exhaust ventilation. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapors or spray mist. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. May corrode metallic surfaces. Do not store in uncoated metallic containers. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Bases. Reducing agents. Combustible materials. Organic materials. Metals. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Canada

Australia and Mexico

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection:	Face-shield.
Skin and body protection:	Chemical resistant protective suit. Gloves. boots.
Respiratory protection:	Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
Hygiene measures:	Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid.	Appearance: No information available	Color: Colorless. Light yellow.
Odor: Acrid. Disagreeable. Choking .	Taste: No information available	Formula: HNO ₃
Molecular/Formula weight: 63.01	Flash point (°C): Not applicable	Flashpoint (°C/°F): Not applicable
Flash Point Tested according to: Not applicable	Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available
Autoignition Temperature (°C/°F): No information available	pH: No information available	Melting point/range(°C/°F): -41 °C/-42 °F
Boiling point/range(°C/°F): 121-122°C/249.8-251.6 °F	Decomposition temperature(°C/°F): No information available	Specific gravity: No information available
Density (g/cm³): 1.41-1.42 @ 20 deg. C	Bulk density: No information available	Vapor pressure @ 20°C (kPa): No information available
Evaporation rate: No information available	Vapor density: No information available	VOC content (g/L): No information available
Odor threshold (ppm): 0.29-0.98	Partition coefficient (n-octanol/water): No information available	Viscosity: No information available
Miscibility: No information available	Solubility: Freely soluble in water	

10. STABILITY AND REACTIVITY

Reactivity

Oxidizer. Reacts violently with alc ohol, organic material, turpene, charcoal.
Violent reaction with Nitric acid + Acetone and Sulfuric acid.
Incompatible with combustible materials, metallic powders, carbides, aldehydes, cyanides, chromic acid, hydrogen sulfide, sulfides, metals, organic solvents, acetic acid, alkalis, alcohols, cesium and rubidium acetylides, nitrobenzene
Flammable in presence of cellulose or other combustible materials.
Phosphine, hydrogen sulfide, selenide all ignite when fuming nitric acid is dripped into gas.
Phosphine ignites in concentrated nitric acid.
Nickel tetrphosphide ignites with fuming nitric acid.
Contact with metals may evolve flammable hydrogen gas.
A jet of ammonia will ignite nitric acid vapor.
Cellulose may be converted to the highly flammable nitrate ester on contact with the vapor of nitric acid as well as the liquid itself
Reacts explosively with metallic powders, carbides, cyanides, sulfides, alkalis and turpentine.
Can react explosively with many reducing agents.
Arsine, phosphine, tetraborane all oxidized explosively in presence of nitric acid.
Cesium and rubidium acetylides explode in contact with nitric acid.
Explosive reaction with Nitric Acid + Nitrobenzene + water.
Detonation with Nitric Acid + 4-Methylcyclohexane.
The addition of warm fuming nitric acid to phosphine causes explosion.
Addition of water to nitration mixture diluted with arequal volume of water can cause a low order explosion.
Cyclopentadiene reacts explosively with fuming nitric acid.
Mixtures of fuming nitric acidand acetonitrile are high explosives

Chemical stability

Stability: This material may darken during storage. Stable.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

10. STABILITY AND REACTIVITY

Conditions to avoid:	Incompatible materials.
Incompatible Materials:	Bases. Reducing agents. Combustible materials. Organic materials. Metals. Acids.
Hazardous decomposition products:	Nitrogen oxides (NOx).
Other Information	
Corrosivity:	Extremely corrosive in presence of aluminum, of copper, of brass. Non-corrosive in presence of glass, of stainless steel(304), of stainless steel(316).
Special Remarks on Corrosivity:	In presence of traces of oxides, it attacks all base metals except aluminum and special chromium steels. It will attack some forms of plastics, rubber, and coatings. Nitric Acid corrodes almost all metals except gold, and white gold, forming nitrates. No corrosive effect on bronze. No corrosivity data for zinc, and steel

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Principal Routes of Exposure:**

Skin. Inhalation. Ingestion.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (inhalation-gas) 35714mg/l

Component Information**Product Information**

LD50/oral/rat =

VALUE- Acute Tox Oral = No information available

LD50/oral/mouse =

Value - Acute Tox Oral = No information available

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat

VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms**Skin Contact:**

Severe skin irritation. Causes skin burns. May cause deep penetrating ulcers of the skin with a characteristic yellow to brownish discoloration. Absorption through the skin may cause methemoglobinemia (the formation of methemoglobin in the blood which causes deficient oxygenation of the blood due to decreased available hemoglobin).

Eye Contact:

Severe eye irritation. Causes eye burns. May cause irreversible eye damage.

Inhalation

Causes irritation and possible burns of the respiratory tract with burning pain in the nose and throat, coughing, sneezing, wheezing, shortness of breath and pulmonary edema. Other symptoms may include nausea, and vomiting.

Ingestion

Causes serious gastrointestinal tract irritation or burns with nausea, vomiting, severe abdominal pain, and possible "coffee grounds" appearance of the vomitus. May cause perforation of the digestive tract..

Aspiration hazard

No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Sensitization:** No information available**Mutagenic Effects:** No information available**Carcinogenic effects:** Not considered carcinogenic

11. TOXICOLOGICAL INFORMATION

Chronic Toxicity Repeated inhalation may produce changes in pulmonary function and/or chronic bronchitis. It may also cause weight loss, and affect behavior/central nervous system (headache, dizziness, drowsiness, muscle contraction or spasticity, weakness, loss of coordination, mental confusion), and urinary system (kidney failure, decreased urinary output after several hours of uncorrected circulatory collapse).
 Repeated exposure may cause discoloration and/or erosion of teeth (dental enamel).
 Eye irritation and respiratory tract signs and symptoms resembling those of frequent upper respiratory viral infections have been associated with chronic nitric acid exposure.

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: May cause developmental effects based on animal data.

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available

STOT - repeated exposure No information available

Target Organs: Skin. Eyes. Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
 Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
 Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

DOT		ADR	
UN-No:	UN2031	UN-No:	UN2031
Proper Shipping Name:	Nitric acid (Solution)	Proper Shipping Name:	Nitric acid (Solution)
Hazard Class:	8	Hazard Class:	8
Subsidiary Risk:	5.1	Packing Group:	II
Packing Group:	II	Subsidiary Risk:	5.1
Marine Pollutant	No data available	Classification Code:	No information available
ERG No:	157	Description:	No information available
DOT RQ (lbs):	No information available	CEPIC Tremcard No:	No information available
Symbol(s):	R4		
TDG (Canada)		IMO / IMDG	
UN-No:	UN2031	UN-No:	UN2031
Proper Shipping Name:	Nitric acid (Solution)	Proper Shipping Name:	Nitric acid (Solution)
Hazard Class:	8	Hazard Class:	8
Subsidiary Risk:	5.1	Subsidiary Risk:	5.1
Packing Group:	II	Packing Group:	II
Description:	No information available	Description:	No information available
		IMDG Page:	No information available
		Marine Pollutant	No information available
		EMS:	F-A
		MFAG:	No information available
		Maximum Quantity:	No information available

14. TRANSPORT INFORMATION

RID		IATA	
UN-No:	UN2031	UN-No:	UN2031
Proper Shipping Name:	Nitric acid (Solution)	Proper Shipping Name:	Nitric acid (Solution)
Hazard Class:	8	Hazard Class:	8
Subsidiary Risk:	8 + 5.1	Subsidiary Risk:	No information available
Packing Group:	II	Packing Group:	II
Classification Code:	No information available	ERG Code:	8L
Description:	No information available	Description:	No information available

ICAO	
UN-No:	UN2031
Proper Shipping Name:	Nitric acid (Solution)
Hazard Class:	8
Subsidiary Risk:	5.1
Packing Group:	II
Description:	No information available

15. REGULATORY INFORMATION**International Inventories****U.S. Regulations**

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

CERCLA/SARA**U.S. TSCA****Canada****WHMIS hazard class:**

C Oxidizing materials

E Corrosive material

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory**EU Classification****R-phrase(s)**

R35 - Causes severe burns.

R 8 - Contact with combustible material may cause fire.

S-phrase(s)

S23 - Do not breathe gas/fumes/vapor/spray.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36 - Wear suitable protective clothing.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 1/2 - Keep locked up and out of the reach of children.

The product is classified in accordance with Annex VI to Directive 67/548/EEC**Indication of danger:**

C - Corrosive.

O - Oxidising.

**16. OTHER INFORMATION****Revision Date:** 05/05/2015**Prepared by:** HazTech Systems, Inc.

This information is based on HazTech Systems, Inc.'s, current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product