



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** NITRIC ACID 69.5%  
**Version #** 05  
**Revision date** 03-16-2010  
**Product Code** 438-200249, 438-040372, 438-040373, 438-064058, 438-064059, 438-064060, 438-064061, 438-064335, 438-064337, 438-064339, 438-064832, 438-200201, 438-200202, 438-200203, 438-200204, 438-200205, 438-200206, 438-200207, 438-200208, 438-200209, 438-200210, 438-200211, 438-200212, 438-200213, 438-200214, 438-200215, 438-200216, 438-200217, 438-200218, 438-200219, 438-200220, 438-200221  
**Manufacturer/Supplier** KMG Electronic Chemicals, Inc.  
9555 W. Sam Houston Parkway South  
Suite 600  
Houston, Texas 77099 US  
Phone Number: 713-600-3800  
Emergency Phone No.: 1-866-706-3266

## 2. Hazards Identification

**Physical state** Liquid.  
**Appearance** Colorless liquid.  
**Emergency overview** DANGER  
Corrosive. Causes skin and eye burns. Harmful by inhalation. Prolonged exposure may cause chronic effects. Oxidizer - contact with other material may cause fire. Highly water reactive.  
**OSHA regulatory status** This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).  
**Potential health effects**  
**Routes of exposure** Inhalation. Ingestion. Skin contact. Eye contact.  
**Eyes** This product causes eye burns. Risk of serious damage to eyes. Do not get this material in contact with eyes.  
**Skin** Causes skin burns. Do not get this material in contact with skin.  
**Inhalation** Causes burns. Prolonged inhalation may be harmful. Do not breathe dust/fume/gas/mist/vapors/spray. Inhalation of vapor or mist may cause lung edema.  
**Ingestion** Components of the product may be absorbed into the body by ingestion. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Do not ingest.  
**Target organs** Eyes. Respiratory system. Skin.  
**Chronic effects** Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).  
**Signs and symptoms** Contact with this material will cause burns to the skin, eyes and mucous membranes. Irritation of eyes and mucous membranes.  
**Potential environmental effects** Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the environment.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Nitric acid	7697-37-2	69.5

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First Aid Measures

**First aid procedures**  
**Eye contact** Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing.

<b>Skin contact</b>	Immediately flush skin at least 15 minutes with plenty of water. Remove and isolate contaminated clothing and shoes. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
<b>Inhalation</b>	If breathing is difficult, give oxygen. Immediately call a poison control center or doctor for treatment advise. Move person to fresh air. If breathing has ceased, start mouth-to-mouth artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
<b>Ingestion</b>	Immediately call a poison control center or doctor for treatment advise. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless told to do so by a poison control center or doctor.
<b>Notes to physician</b>	In case of shortness of breath, give oxygen. Keep victim warm.
<b>General advice</b>	In case of shortness of breath, give oxygen. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## 5. Fire Fighting Measures

<b>Flammable properties</b>	Substance does not burn but will support combustion. May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Carbon dioxide (CO <sub>2</sub> ). Halon. Water spray, fog or mist. Use dry sand or earth to smother fire.
<b>Unsuitable extinguishing media</b>	Alcohol-resistant foam. Dry chemical. Do not use water jet as an extinguisher, as this will spread the fire.
<b>Protection of firefighters</b>	
<b>Specific hazards arising from the chemical</b>	Fire may produce irritating, corrosive and/or toxic gases. Substance does not burn but will support combustion. May ignite combustibles (wood, paper, oil, clothing, etc.).
<b>Protective equipment and precautions for firefighters</b>	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Move containers from fire area if you can do it without risk. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out. In case of fire and/or explosion do not breathe fumes. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
<b>Specific methods</b>	In the event of fire and/or explosion do not breathe fumes. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

## 6. Accidental Release Measures

<b>Personal precautions</b>	Use Personal Protective Equipment recommended in Section 8 of the MSDS. Local authorities should be advised if significant spillages cannot be contained. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Keep unnecessary personnel away. Stay upwind. Keep out of low areas.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
<b>Methods for containment</b>	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.
<b>Methods for cleaning up</b>	Should not be released into the environment.  Large Spills: Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.  Small Spills: Absorb spill with vermiculite or other inert material. Clean contaminated surface thoroughly. Avoid dust formation. After removal flush contaminated area thoroughly with water.  Never return spills to original containers for re-use. Neutralize with dilute solution of sodium carbonate.



## 7. Handling and Storage

### Handling

Use Personal Protective Equipment recommended in section 8 of the MSDS. Handle and open container with care. Use only with adequate ventilation. Avoid prolonged exposure. Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Wash thoroughly after handling. Do not allow water to get into container because of a violent reaction. Never add water to this product.

### Storage

Keep in a well-ventilated place. Keep container tightly closed. Keep this material away from food, drink and animal feed. Keep out of the reach of children. Use care in handling/storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep product away from organic solvents and other products containing easily oxidized functional groups. Minimize exposure to air. Oxidizing material - Keep away from flammable and combustible materials.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### ACGIH

##### Components

Nitric acid (7697-37-2)

##### Type

##### Value

STEL

4 ppm

TWA

2 ppm

#### U.S. - OSHA

##### Components

Nitric acid (7697-37-2)

##### Type

##### Value

PEL

2 ppm

STEL

5 mg/m<sup>3</sup>

STEL

10 mg/m<sup>3</sup>

TWA

4 ppm

TWA

2 ppm

5 mg/m<sup>3</sup>

### Engineering controls

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Explosion proof exhaust ventilation should be used. Use explosion-proof equipment.

### Personal protective equipment

#### Eye / face protection

Do not get this material in contact with eyes. Wear face shield if there is risk of splashes. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Wear approved safety glasses or goggles.

#### Skin protection

Wear appropriate chemical resistant gloves. Wear appropriate chemical resistant clothing. Protective shoes or boots. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Do not get this material in contact with skin. Do not get this material on clothing. Wear chemical protective equipment that is specifically recommended by the Personal Protective Equipment manufacturer.

#### Respiratory protection

Do not breathe dust/fume/gas/mist/vapors/spray. In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment.

#### General hygiene considerations

When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Remove and isolate contaminated clothing and shoes. Handle in accordance with good industrial hygiene and safety practice. Launder contaminated clothing before reuse.

## 9. Physical & Chemical Properties

### Appearance

Colorless liquid.

### Color

Colorless.

### Odor

Pungent. Irritating.

### Odor threshold

Not available.

### Physical state

Liquid.

### Form

Liquid.

### pH

< 1

### Melting point

-41.8 °F (-41 °C)

### Freezing point

Not available.

### Boiling point

251.6 °F (122 °C)

### Flash point

Not available.

Evaporation rate	Not available.
Flammability	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	7.02 mmHg
Vapor density	2.2 (air=1)
Specific gravity	1.41 (Water=1)
Solubility (water)	Completely soluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
VOC	Not available
Density	1.41 g/cm3

## 10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	Oxidizing, avoid contact with reducing agents. Reacts violently with alkaline material. Do not mix with other chemicals. Water, moisture. Contact with combustibles.
Incompatible materials	Incompatible with bases. Water. Alcohols. This product may react with reducing agents. Bases.
Hazardous decomposition products	Nitrogen oxides (NOx).
Possibility of hazardous reactions	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

Components	Test Results
Nitric acid (7697-37-2)	Acute Inhalation LC50 Rat: 65 mg/l 4 Hours
Acute effects	Causes burns. Can enter lungs and cause damage. Causes severe eye irritation. Harmful if inhaled or swallowed.
Local effects	Causes burns.
Sensitization	Not available.
Chronic effects	Hazardous by OSHA criteria. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. No data available.
Epidemiology	Not available.
Mutagenicity	No data available.
Neurological effects	Not available.
Reproductive effects	No data available.
Teratogenicity	Not available.

## 12. Ecological Information

Ecotoxicity	Components of this product are hazardous to aquatic life. Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
Environmental effects	Harmful to aquatic life.
Persistence and degradability	Not available.
Bioaccumulation / Accumulation	Not available.

Mobility in environmental media	Not available.
Partition coefficient (n-octanol/water)	Not available

### 13. Disposal Considerations

Waste codes	D001: Waste Flammable material with a flash point <140 °F
Disposal instructions	Dispose of this material and its container at hazardous or special waste collection point. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Dispose of in accordance with local regulations.

### 14. Transport Information

#### DOT

##### Basic shipping requirements:

UN number	UN2031
Proper shipping name	Nitric acid
Hazard class	8
Subsidiary hazard class	5.1
Packing group	II
Labels required	8

##### Additional information:

Special provisions	A6, B2, B47, B53, IB2, T8, TP2, TP12
Packaging exceptions	None
Packaging non bulk	158
Packaging bulk	242
ERG number	157

#### DOT BULK

##### Basic shipping requirements:

UN number	UN2031
Proper shipping name	Nitric acid
Hazard class	8
Subsidiary hazard class	5.1
Packing group	II
Labels required	8

##### Additional information:

Special provisions	A6, B2, B47, B53, IB2, T8, TP2, TP12
Packaging exceptions	None
Packaging non bulk	158
Packaging bulk	242
ERG number	157

#### IATA

##### Basic shipping requirements:

UN number	2031
Proper shipping name	Nitric acid
Hazard class	8
Subsidiary hazard class	5.1
Packing group	II

#### IMDG

##### Basic shipping requirements:

UN number	2031
Proper shipping name	NITRIC ACID
Hazard class	8
Subsidiary hazard class	5.1
Packing group	II
EmS No.	F-A, S-B





DOT



DOT BULK



IATA



IMDG

## 15. Regulatory Information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

#### US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

Nitric acid (CAS 7697-37-2) 1000 LBS

#### US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

Nitric acid (CAS 7697-37-2) 1000 LBS

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Nitric acid (CAS 7697-37-2) 1.0 %

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Nitric acid (CAS 7697-37-2) Listed.

### CERCLA (Superfund) reportable quantity (lbs)

Nitric acid 1000

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**  
Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - Yes

**Section 302 extremely hazardous substance** No

**Section 311 hazardous chemical** No

### Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

### State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

#### US - California Hazardous Substances (Director's): Listed substance

Nitric acid (CAS 7697-37-2) Listed.

#### US - Massachusetts RTK - Substance: Listed substance

Nitric acid (CAS 7697-37-2) Listed.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

Nitric acid (CAS 7697-37-2) 500 LBS

**US - New Jersey RTK - Substances: Listed substance**

Nitric acid (CAS 7697-37-2) Listed.

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

Nitric acid (CAS 7697-37-2) Listed.

**16. Other Information**

**Further information**

HMIS® is a registered trade and service mark of the NPCA.

**HMIS® ratings**

Health: 3  
Flammability: 0  
Physical hazard: 2

**NFPA ratings**

Health: 3  
Flammability: 0  
Instability: 1  
Special hazards: W

**Disclaimer**

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

**Issue date**

03-16-2010

**This data sheet contains  
changes from the previous  
version in section(s):**

Composition / Information on Ingredients: Component information  
Accidental Release Measures: Methods for cleaning up  
Disposal Considerations: Waste codes