Mallinckrodt Baker

Mallinckrodt CHEMICALS J.T.Baker

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**NITRIC ACID**
Version #	03
Revision date	06-25-2010
CAS #	Mixture
Product Codes	J.T.Baker: 5371, 5796, 5801, 5856, 5876, 9597, 9598, 9601, 9602, 9606, 9607, 9610, 9612, 9615, 9616, 9618, 9670, 9761, IM9612 Mallinckrodt: 0250, 1409, 2704, 2705, 2706, 2707, 6623, V007, V077, V228, V230, V231, V471, V575, V647
Synonym(s)	AQUA FORTIS * AZOTIC ACID
Manufacturer	Mallinckrodt Baker, Inc.
Address	222 Red School Lane Phillipsburg, NJ 08865 US
Customer Service	800-582-2537
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER -- OXIDIZER Poison. Contact with combustible material may cause fire. Corrosive. Causes severe skin and eye burns. May be fatal if swallowed or inhaled. Prolonged exposure may cause chronic effects.
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	Corrosive to the eyes and may cause severe damage including blindness. Causes eye burns. Risk of serious damage to eyes. Do not get this material in contact with eyes.
Skin	Corrosive. Causes severe skin burns. Do not get this material in contact with skin.
Inhalation	Corrosive. Causes burns. Inhalation of mists or vapors may produce upper airway edema, wheezing, pulmonary edema, pneumonitis and respiratory failure. Prolonged inhalation may be harmful. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Components of the product may be absorbed into the body by ingestion. Irritating. May cause nausea, stomach pain and vomiting. Do not ingest.
Target organs	Eyes. RESPIRATORY SYSTEM. Skin. Lungs. Teeth.
Chronic effects	Inhalation of vapor or mist may cause lung edema.
Signs and symptoms	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	60 - 70
Other components below reportable levels		20 - 40

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim 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. Get medical attention immediately.
Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	In case of shortness of breath, give oxygen. Keep victim warm.
General advice	Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	Not flammable, but reacts with most metals to form flammable hydrogen gas. Contact with combustible material may cause fire. May explode from heat or contamination. These substances will accelerate burning when involved in a fire. Some will react explosively with hydrocarbons (fuels). Some may decompose explosively when heated or involved in a fire. Runoff may create fire or explosion hazard.

Extinguishing media

Suitable extinguishing media	Water.

Protection of firefighters

Specific hazards arising from the chemical	May ignite combustibles (wood, paper, oil, clothing, etc.). Some may react explosively with fuels.
Protective equipment and precautions for firefighters	Do not move cargo or vehicle if cargo has been exposed to heat. 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. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Special protective equipment for fire-fighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Specific methods	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.
Hazardous combustion products	May include oxides of nitrogen.

6. Accidental Release Measures

Personal precautions	Ensure adequate ventilation. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Avoid skin contact and inhalation of vapors during disposal of spills.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Runoff from fire control or dilution water may cause pollution. Do not contaminate water.

Methods for containment

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Should not be released into the environment. Do not get water inside container. Neutralize spill area and washings with soda ash or lime.

Large Spills: Dike far ahead of 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: Wipe up with absorbent material (e.g. cloth, fleece).

Never return spills in original containers for re-use. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

J. T. Baker NEUTRASORB® acid neutralizer is recommended for spills of this product.

7. Handling and Storage

Handling

Keep away from clothing and other combustible materials. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Use caution when combining with water; DO NOT add water to acid, ALWAYS add acid to water while stirring to prevent release of heat, steam and fumes. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not reuse the empty container.

Storage

Store in a well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Do not store near combustible materials. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components	Type	Value
NITRIC ACID (7697-37-2)	STEL	4.0000 ppm
	TWA	2.0000 ppm

U.S. - OSHA

Components	Type	Value
NITRIC ACID (7697-37-2)	PEL	2.0000 ppm
		5.0000 mg/m3
	STEL	10.0000 mg/m3
		4.0000 ppm
	TWA	2.0000 ppm
		5.0000 mg/m3

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Eye / face protection

Chemical goggles are recommended. Face-shield. Provide eyewash station and safety shower. Do not get in eyes.

Skin protection	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 manufacturer. It may provide little or no thermal protection. 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). Chemical resistant gloves.
Respiratory protection	Wear positive pressure self-contained breathing apparatus (SCBA). This material is an oxidizer and should not come in contact with cartridges and cannisters that contain oxidizable materials, such as activated charcoal. Do not breathe dust/fume/gas/mist/vapors/spray.
General hygeine considerations	Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. When using, do not eat, drink or smoke. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless. Light yellow.
Odor	Pungent.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	1 (0.1M solution)
Melting point	-18.4 °F (-28.08 °C) estimated
Freezing point	-18.4 °F (-28.08 °C) estimated
Boiling point	192.2 °F (88.53 °C) estimated
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	56.78 hPa estimated
Vapor density	2 - 3
Specific gravity	1.5501 estimated
Relative density	Not available.
Solubility (water)	Miscible.
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Percent volatile	32.5 % estimated
Molecular weight	63.01
Molecular formula	HNO_3

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions. Decomposes on heating.
Conditions to avoid	Reacts violently with strong alkaline substances. This product may react with reducing agents. Do not mix with other chemicals. Avoid heat. Exposure to light.
Incompatible materials	Incompatible with bases. This product may react with reducing agents. Alcohols. May be corrosive to metals. On contact with water an exothermic reaction may occur emitting steam, heat and toxic fumes.

Hazardous decomposition products	Nitrogen oxides (NOx). May decompose upon heating to produce corrosive and/or toxic fumes.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
NITRIC ACID (Mixture)	Acute Inhalation LC50 Mouse: 230 mg/l estimated
Components	**Test Results**
NITRIC ACID (7697-37-2)	Acute Inhalation LC50 Rat: 244 mg/l 30.00 Minutes

* Estimates for product may be based on additional component data not shown.

Acute effects	Causes burns.
Chronic effects	Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Corrosive effects.
Epidemiology	Not available.
Neurological effects	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 organisms.
Persistence and degradability	Not available.

13. Disposal Considerations

Waste codes	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable 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

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

DOT

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

NITRIC ACID: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
Section 311 hazardous chemical	Yes

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

Country(s) or region	Inventory name	On inventory (yes/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 - New Jersey Community RTK (EHS Survey): Reportable threshold

NITRIC ACID (CAS 7697-37-2) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

NITRIC ACID (CAS 7697-37-2) Listed.

Saf-T-Data

Health: 4 - Extreme (Poison)
Flammability: 0 - None
Reactivity: 3 - Severe (Oxidizer)
Contact: 4 - Extreme (Corrosive)
Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: W - White (Corrosive)

16. Labeling Info

Label Hazard Warning

DANGER -- OXIDIZER
Poison. Contact with combustible material may cause fire. Corrosive. Causes severe skin and eye burns. May be fatal if swallowed or inhaled. Prolonged exposure may cause chronic effects.

Label Precautions

Do not get in eyes, on skin, or on clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed. Do not store near combustible materials. Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately. Remove contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention immediately. Wash clothing separately before reuse. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Rinse mouth thoroughly. Do not use mouth-to-mouth method if victim inhaled the substance. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

17. Other Information

NFPA ratings

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

Disclaimer

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Issue date

06-25-2010