RCI Labscan Limited

SAFETY DATA SHEET

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Revision Date Feb 06, 2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	NITRIC ACID 70%
CAS-No.	7697-37-2
Product code	AR1137, EP1137, GP1137, RP1137, SL1137, SM1136, SM1137, VL1137

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for analysis and production.

1.3 Details of the supplier of the safety data sheet

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand
Telephone number	(662) 613-7911-4
Fax number	(662) 613-7915

1.4 Emergency Telephone Number

Emergency phone	(662) 613-7911-4

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Oxidizing liquids (Category 2), H272
Corrosive to metals (Category 1), H290
Skin corrosion (Category 1A), H314
For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

O	Oxidizing	R8
C	Corrosive	R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word	Danger

Hazard statement(s)

H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary statement(s)

P210	Keep away from heat.
P220	Keep/Store away from clothing/combustible materials.
P221	Take any precaution to avoid mixing with combustibles.

P234	Keep only in original container.
P260	Do not breathe dusts/fume/gas/ mist/ vapours/ spray.
P264	Wash hand thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant/ container with a resistant inner liner.

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixture

Nitric acid

Synonyms Aqua fortis, Hydrogen nitrate.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
7697-37-2	231-714-2	007-004-00-1	HNO_3	63.01 g/mol	70

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Concentration	Classification
Nitric acid		
CAS-No 7697-37-2 EC-No 231-714-2 EC-Index-No 007-004-00-1	70%	Oxidizing liquids (Category 2), H272 Corrosive to metals (Category 1), H290 Skin corrosion (Category 1A), H314

Hazardous ingredients according to Directive 1999/45/EC

Component	Concentration	Classification
Nitric acid		
CAS-No 7697-37-2 EC-No 231-714-2 EC-Index-No 007-004-00-1	70%	O, Oxidizing, R8 C, Corrosive, R35

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing

	or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. Dab with polyethylene glycol 400. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	Rinse mouth. Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

After swallowing: make victim drink water (two glasses at the most), avoid vomiting, risk of perforation. Immediately call in physician. Do not attempt to neutralize.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

In adaption to materials stored in the immediate neighborhood.

5.2 Special hazards arising from the substance or mixture

Non-combustible. Ambient fire may liberate hazardous vapors. Hydrogen may form upon contact with metals (danger of explosion). The following may develop in event of fire: nitrogen oxide.

5.3 Advice for firefighters

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

5.4 Further information

Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or ground water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Spillage : soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered drums. Dispose of promptly.

6.4 Reference to other sections

For disposal see **Section 13**.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Content may be under pressure. Due to the chemical properties of nitric acid, nitrogen oxides may develop on exposure to light. Provision of good ventilation in the working area. The floor must be acid resistant. Suitable material: Glass, stainless steel, iron, aluminium, polyvinyl chloride, polytetrafluoro ethylene PTFE (Teflon). Unsuitable material: Copper, nickel alloys, nickel, silver, tin and some iron alloys. Do not leave container open. Do not transport together with incompatible substances. Filter the solutions only with glass wool, glass chips, or ceramic filters. Do not use any filtration materials made of paper which risks ignition after drying.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed at room temperature in a dry, cool and well-ventilated place. Keep out of direct sunlight and away from heat, water and incompatible materials. Requirements for containers, no metal containers.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in ventilation hoods and fans.

Individual protection measures (Personal protective equipment, PPE)

Eye/face protection

Goggles giving complete protection to eyes.

Skin protection

Chemical resistant apron / corrosive protective clothing, heavy duty work shoes.

Handle with gloves

- Full contact wears gloves from viton material.
- Splash contact wears gloves from natural latex material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter E-P2 (EN 141 or EN 14387).

Environmental exposure controls

Prevent liquid entering sewers, basements and workpits.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: From	Liquid
: Color	Colorless
Odour	Pungent
Odour Threshold	Not Available
pH	<1 at 20ºC
Melting point/range	-41 ºC
Boiling point/range	119.9 ºC
Flash point	Not Available

Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	Not Available
upper	Not Available
Vapor Pressure	~9.4 hPa at 20ºC
Relative Vapor Density	Not Available
Density	1.41 g/ml at 20ºC
Water solubility	Soluble at 20ºC (development of heat)
Partition coefficient (n-octanol/water)	log Pow; -2.3
Auto-Ignition temperature	Not Available
Decomposition Temperature	Not Available
Viscosity	Not Available
Explosive properties	Not Explosive
Oxidizing properties	May intensify fire; oxidizer.

SECTION 10: Stability and reactivity

10.1 Reactivity

Strong oxidizing agent.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Risk of explosion in contact with: alcohols, fluorine, reducing agents, oxidizing agents, organic substances, acetone, acetonitrile, alkali acetylides, formic acid, aminopropandiol, aminothiazole/acid, aniline (self-ignition possible), antimony hydride, hydrogen arsenide, cotton, benzidine, benzene, calcium phosphide, cellulose, chlorobenzene, 4-chloronitroaniline, cyclohexanol, cyclohexylamine, cyclopentadiene, 1,2-dichloroethane, dichloromethane, diethyl ether (anhydrous), dimethylhydrazine, dinitrobenzene, dimethyl sulfide, dioxane; divinyl ether, acetic acid, acetic anhydride, ethylene glycol (heat), 5-ethyl-2-methylpyridine (heat), formic aldehyde, 2-formamido-1-phenyl-1,3-propanediol, glycerol/sulfuric acid, rubber, fuels, hexanol, hydrazine, hydrazones, potassium chlorate + organic substances, potassium permanganate + alcohol, coal, hydrocarbons, copper, lithium silicide, organic solvents, manganese (rarely), metal cyanides, metal powders, mesitylene (heat), methylcyclohexanone, methylethylpyridine (rarely), nitrobenzene/ sulphuric acid, nitrochloroaniline, nitromethane, nitrotoluene, organic substances + sulphuric acid, petroleum, phosphorus trichloride, hydrogen phosphide, phthalic anhydride/sulphuric acid, pyrocatechol, mercury nitrate/ ethanol, sulphur dioxide (rarely), hydrogen telluride, tetraborane, thiocyanates, titanium, toluene, triazine/trifluoroacetic anhydride, hydrogen peroxide/mercury oxide, p-xylol (rarely), cellulose containing products, tin (rarely), sugars.

The substance can react dangerously with: amines, ammonia, combustable substances, potassium, lithium, sodium, reducing agents, acrylonitrile, formic acid, antimony, arsenic, boron, bromine pentafluoride, butanthiol, chlorine trifluoride, crotonaldehyde, iron (II)-oxide (powder), ethylaniline, furfuryl alcohol, germanium, glycerol / hydrochloric or hydrofluoric acid, hydrogen iodide, copper (I)-nitride, magnesium (heat), magnesium phosphides, mellitic acid, methyl thiophene, sodium hydride, sodium hypochlorite, phenylenediamine, phosphonium iodide, polypropylene, pyridine, sawdust, sulphur halogenides, conc. sulphuric acid, hydrogen sulphide, selenium, hydrogen selenide, thiols, thiophene,toluidine, triethylamine, uranium, uranium disulphide, bismuth, xylidine.

10.4 Conditions to avoid

Heat.

10.5 Incompatible materials

Organic combustible substances, oxidizable substances, organic solvents, alcohols, ketones, aldehydes, anhydrides, amines, anilines, nitriles, organic nitro compounds, hydrazine and derivatives, acetylidane, metals (generation of hydrogen), metal alloys, metallic oxides, alkali metals, alkaline earth metals, ammonia, alkalis, acids, hydrides, halogens, halogens compounds, nonmetallic oxides, nonmetallic halides, nonmetallic hydrogen compounds, nonmetals, phosphides, nitrides, lithium silicide, hydrogen peroxide.

10.6 Hazardous decomposition products

Hydrogen, nitrous gases (Hazardous decomposition products from under contact with metals). Danger of explosion.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity

LD_{LO} (oral, human): 430 mg/kg

LC_{50} (inhalation, rat): 0.13 mg/l / 4 h (nitrogen dioxide)

Acute oral toxicity

Symptoms: tissues damage (mouth, oesophagus and gastrointestinal tract) strong pain (risk of perforation), bloody vomiting, death.

Acute inhalation toxicity

Symptoms:burns of mucous membranes, coughing, and dyspnoea. Inhalation may lead to the formation of oedemas in the respiratory tract.

Skin corrosion/irritation

Severe burns.

Serious eye damage/eye irritation

Burns, Risk of blindness.

Respiratory or skin sensitization

Not Available

Germ cell mutagenicity

Bacterial mutagenicity; Ames test is negative.

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

Strong corrosive substance. The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

Mixture

12.1 Toxicity

Toxicity to fish	LC_{50} Gambusia affinis: 72 mg/l/96h

12.2 Persistence and degradability

Not Available

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water)	log Pow: -2.3(experimental). No bioaccumulation is to be expected (log P o/w <1)

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Harmful effect on aquatic organisms. Toxic effect on fish and plankton. Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Does not cause biological oxygen deficit. Hazard for drinking water supplies. Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Contaminated packaging

Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 14: Transport information

Land Transport (ADR/RID)

UN Number	2031
UN proper shipping name	NITRIC ACID
Transport hazard class(es)	8 (5.1)
Packaging group	II
Environmental hazards	No
Special precautions for user	Yes

Sea transport (IMDG)

UN Number	2031
UN proper shipping name	NITRIC ACID
Transport hazard class(es)	8 (5.1)
Packaging group	II
Marine pollutant	No
Special precautions for user	Yes
EmS	F-A S-Q

Air transport (IATA)

UN Number	2031
UN proper shipping name	NITRIC ACID
Transport hazard class(es)	8 (5.1)
Packaging group	II
Environmental hazards	No
Special precautions for user	Yes

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not Available

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Full text of R-phrases referred to under sections 2 and 3

C	Corrosive.
O	Oxidizing
R8	Contact with combustible material may cause fire.
R35	Causes severe burns.

Recommended restrictions

Take notice of labels and safety data sheets for the working.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.
Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.
Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany, Source: IFA for Databases on hazardous substances (GESTIS).

Further information

Contact to RCI Labscan Limited.

Revision Date

06/02/2015