Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name | **Aluminum Leach Etch**

Synonyms | Acid Etchant; Phosphoric Acid Etchant

Product Code | 80100 AL-E

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

Relevant identified use(s) | Aluminum Etching

1.3 Details of the supplier of the safety data sheet

Manufacturer | Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) | 713-896-2896

Telephone (Technical) | 800-819-1704

1.4 Emergency telephone number

Manufacturer | 800-424-9300 - CHEMTREC

Manufacturer | +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP | Skin Corrosion 1B - H314

DSD/DPD | Corrosive (C)

R34

2.2 Label Elements

CLP

DANGER

Hazard statements | H314 - Causes severe skin burns and eye damage.

Precautionary statements

Prevention | P260 - Do not breathe mist/vapours/spray.
P264 - Wash thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response | P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P310 - Immediately call a POISON CENTER or doctor/physician.
P321 - Specific treatment, see supplemental first aid information.
P363 - Wash contaminated clothing before reuse.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage/Disposal | P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases | R34 - Causes burns.

Safety phrases | S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.
S39 - Wear eye/face protection.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP | According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD | According to European Directive 1999/45/EC this preparation is considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012 | Skin Corrosion 1B - H314
Serious Eye Damage 1 - H318

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements | Causes severe skin burns and eye damage. - H314
Causes serious eye damage - H318

Precautionary statements

Prevention | Do not breathe mist/vapours/spray. - P260
Wash thoroughly after handling. - P264
Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with

water/shower. - P303+P361+P353
Immediately call a POISON CENTER or doctor/physician. - P310
Specific treatment, see supplemental first aid information. - P321
Wash contaminated clothing before reuse. - P363
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331

Storage/Disposal | Store locked up. - P405
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012 | Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS | Corrosive - E

2.2 Label elements

WHMIS

| Corrosive - E

2.3 Other hazards

WHMIS | In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA

Section 3 - Composition/Information on Ingredients

3.1 Substances

| Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition				
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**

Phosphoric acid	**CAS:**7664-38-2 **EC Number:**231-633-2 **EU Index:**015-011-00-6 **EINECS:**231-633-2	65% TO 80%	Ingestion/Oral-Rat LD50 • 1.25 g/kg Inhalation-Rat LC50 • 25.5 mg/m³	**EU DSD/DPD:** Annex VI, Table 3.2: C; R34 **EU CLP:** Annex VI, Table 3.1: Skin Corr. 1B, H314 **OSHA HCS 2012:** Eye Dam. 1; Skin Corr. 1C
Acetic acid	**CAS:**64-19-7 **EC Number:**200-580-7 **EU Index:**607-002-00-6 **EINECS:**200-580-7	< 10%	Ingestion/Oral-Rat LD50 • 3310 mg/kg Skin-Rabbit LD50 • 1060 µL/kg Inhalation-Rat LC50 • 11400 mg/m³ 4 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2: R10; C; R35 **EU CLP:** Annex VI, Table 3.1: Flam. Liq. 3, H226; Skin Corr. 1A, H314 **OSHA HCS 2012:** Flam. Liq. 3; Skin Corr. 1B; Eye Dam. 1
Nitric acid	**CAS:**7697-37-2 **EC Number:**231-714-2 **EU Index:**007-004-00-1 **EINECS:**231-714-2	< 5%	Inhalation-Rat LC50 • 130 mg/m³ 4 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2: C; R35 O; R8 **EU CLP:** Annex VI, Table 3.1: Ox. Liq. 3, H272; Skin Corr. 1A, H314 **OSHA HCS 2012:** Ox. Liq. 3; Skin Corr. 1A; Eye Dam. 1

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation | Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give 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.

Skin | For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Get medical attention immediately.

Eye | Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get medical attention immediately.

Ingestion | If swallowed, rinse mouth with water (only if the person is conscious) Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Give plenty of water to drink. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

| Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician | All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media | LARGE FIRES: Dry chemical, CO2, alcohol-resistant foam or water spray.
SMALL FIRES: Dry chemical, CO2 or water spray.

Unsuitable Extinguishing Media | No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
Containers may explode when heated.
Acid reacts with most metals to release hydrogen gas, which can form explosive mixtures with air.

Hazardous Combustion Products
When involved in a fire, this material may decompose and produce irritating vapors, and toxic gases (e.g., phosphorous compounds and oxides of nitrogen).

5.3 Advice for firefighters

Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
Wear positive pressure self-contained breathing apparatus (SCBA).
SMALL FIRES: Move containers from fire area if you can do it without risk.
Runoff from fire control may cause pollution.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container.

6.2 Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Dike to collect large liquid spills.
A vapor suppressing foam may be used to reduce vapors.
Use water spray to reduce vapors or divert vapor cloud drift.
Neutralize residue with neutralizing agent appropriate for acidic materials. Test area with litmus paper to ensure neutralization is complete.

6.4 Reference to other sections

Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling
Handle and open container with care. Use only with adequate ventilation. Use caution when combining with water; DO NOT add water to corrosive liquid, ALWAYS add corrosive liquid to water while stirring to prevent release of heat, steam and fumes. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe mist, vapours, spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage
Keep container tightly closed. Store in a cool, dry, well-ventilated place. Keep away from incompatible materials. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

7.3 Specific end use(s)

Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**China**	**Europe**
Nitric acid (7697-37-2)	STELs	4 ppm STEL	4 ppm STEL	4 ppm STEV; 10 mg/m3 STEV	Not established	1 ppm STEL; 2.6 mg/m3 STEL
	TWAs	2 ppm TWA	2 ppm TWA	2 ppm TWAEV; 5.2 mg/m3 TWAEV	Not established	Not established
Acetic acid (64-19-7)	STELs	15 ppm STEL	15 ppm STEL	15 ppm STEV; 37 mg/m3 STEV	20 mg/m3 STEL	Not established
	TWAs	10 ppm TWA	10 ppm TWA	10 ppm TWAEV; 25 mg/m3 TWAEV	10 mg/m3 TWA	Not established
Phosphoric acid (7664-38-2)	STELs	3 mg/m3 STEL	3 mg/m3 STEL	3 mg/m3 STEV	3 mg/m3 STEL	Not established
	TWAs	1 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 TWAEV	1 mg/m3 TWA	Not established

Exposure Limits/Guidelines (Con't.)						
	Result	**France**	**Germany DFG**	**Germany TRGS**	**Ireland**	**Israel**
Nitric acid (7697-37-2)	STELs	1 ppm STEL [VLCT] (indicative limit); 2.6 mg/m3 STEL [VLCT] (indicative limit)	Not established	Not established	1 ppm STEL; 2.6 mg/m3 STEL	4 ppm STEL
	TWAs	Not established	Not established	1 ppm TWA AGW (exposure factor 1); 2.6 mg/m3 TWA AGW	Not established	2 ppm TWA
Acetic acid (64-19-7)	STELs	10 ppm STEL [VLCT]; 25 mg/m3 STEL [VLCT]	Not established	Not established	15 ppm STEL; 37 mg/m3 STEL	15 ppm STEL
	TWAs	Not established	Not established	10 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2); 25 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2)	10 ppm TWA; 25 mg/m3 TWA	10 ppm TWA
	Ceilings	Not established	20 ppm Peak; 50 mg/m3 Peak	Not established	Not established	Not established
	MAKs	Not established	10 ppm TWA MAK; 25 mg/m3 TWA MAK	Not established	Not established	Not established
	STELs	0.5 ppm STEL [VLCT] (indicative limit); 2 mg/m3 STEL [VLCT] (indicative limit)	Not established	Not established	2 mg/m3 STEL	3 mg/m3 STEL
				2 mg/m3 TWA AGW		

Phosphoric acid (7664-38-2)	TWAs	0.2 ppm TWA [VME] (indicative limit); 1 mg/m3 TWA [VME] (indicative limit)	Not established	(The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, inhalable fraction, exposure factor 2)	1 mg/m3 TWA	1 mg/m3 TWA
	Ceilings	Not established	4 mg/m3 Peak (inhalable fraction)	Not established	Not established	Not established
	MAKs	Not established	2 mg/m3 TWA MAK (inhalable fraction)	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	Italy	NIOSH	OSHA	OSHA Vacated	Portugal
Nitric acid (7697-37-2)	STELs	1 ppm STEL; 2.6 mg/m3 STEL	4 ppm STEL; 10 mg/m3 STEL	Not established	4 ppm STEL; 10 mg/m3 STEL	4 ppm STEL [VLE-CD
	TWAs	Not established	2 ppm TWA; 5 mg/m3 TWA	2 ppm TWA; 5 mg/m3 TWA	2 ppm TWA; 5 mg/m3 TWA	2 ppm TWA [VLE-MP]
Acetic acid (64-19-7)	STELs	Not established	15 ppm STEL; 37 mg/m3 STEL	Not established	Not established	15 ppm STEL [VLE-CD
	TWAs	Not established	10 ppm TWA; 25 mg/m3 TWA	10 ppm TWA; 25 mg/m3 TWA	10 ppm TWA; 25 mg/m3 TWA	10 ppm TWA [VLE-MP]
Phosphoric acid (7664-38-2)	STELs	2 mg/m3 STEL	3 mg/m3 STEL	Not established	3 mg/m3 STEL	3 mg/m3 STEL [VLE-CD
	TWAs	1 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 TWA [VLE-MP]

Exposure Limits/Guidelines (Con't.)

	Result	Spain	Sweden
Nitric acid (7697-37-2)	STELs	1 ppm STEL [VLA-EC]; 2.6 mg/m3 STEL [VLA-EC]	5 ppm STV; 13 mg/m3 STV
	TWAs	Not established	2 ppm LLV; 5 mg/m3 LLV
Acetic acid (64-19-7)	STELs	15 ppm STEL [VLA-EC]; 37 mg/m3 STEL [VLA-EC]	10 ppm STV; 25 mg/m3 STV
	TWAs	10 ppm TWA [VLA-ED]; 25 mg/m3 TWA [VLA-ED]	5 ppm LLV; 13 mg/m3 LLV
Phosphoric acid (7664-38-2)	STELs	2 mg/m3 STEL [VLA-EC]	3 mg/m3 STV
	TWAs	1 mg/m3 TWA [VLA-ED] (indicative limit value; it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary or biocide compound)	1 mg/m3 LLV

Exposure Control Notations

Germany DFG

- Phosphoric acid (7664-38-2): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)

•Acetic acid (64-19-7): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)

8.2 Exposure controls

Engineering Measures/Controls | Good general ventilation 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

Respiratory | Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face | Wear chemical splash safety goggles.

Skin/Body | Wear appropriate gloves.

Environmental Exposure Controls | Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

LLV = Limit Level Value is the exposure limit for 8-hour work day

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

STEV = Short Term Exposure Value

TWAEV = Time-Weighted Average Exposure Value

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Clear liquid with an acidic odor.
Color	Clear	Odor	Acidic odor.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	> 100 C(> 212 F)	Melting Point	
Decomposition Temperature	Data lacking	pH	1.5
Specific Gravity/Relative Density	1.6 Water=1	Water Solubility	Miscible
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	< 0.1 mmHg (torr) @ 20 C(68 F)	Vapor Density	3.4 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

Excess heat.

10.5 Incompatible materials

This product is incompatible with strong oxidizing agents, strong reducing agents. The Phosphoric Acid component is not compatible with aliphatic amines, alkanolamines, alkylene oxides, aromatic amines, amides, ammonia, ammonium hydroxide, bases, calcium oxide, epichlorohydrin, isocyanates, nitromethane (explosive), oleum, organic anhydrides, sulfuric acid, sodium tetrahydroborate, strong oxidizers, vinyl acetate, water. Contact with most metals form hydrogen gas. Attacks some plastics, rubber, and coatings, and glass and ceramics. The Acetic Acid component is incompatible with strong acids, aliphatic amines, alkanolamines, isocyanates, alkylene oxides, epichlorohydrin, acetaldehyde, 2-aminoethanol, ammonia, ammonium nitrate, chlorosulfonic acid, chromic acid, ethylene diamine, ethyleneimine, perchloric acid, permanganates, phosphorus isocyanate, phosphorus trichloride, potassium tert-butoxide, xylene. Attacks cast iron and other metals, forming flammable hydrogen gas.

10.6 Hazardous decomposition products

Products of thermal decomposition include phosphorous, and oxides of nitrogen.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Phosphoric acid (65% TO 80%)	7664-38-2	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 1.25 g/kg; *Lungs, Thorax, or Respiration*:**Acute pulmonary edema**; *Liver*:**Changes in liver weight**; Inhalation-Rat LC50 • 25.5 mg/m³; *Lungs, Thorax, or Respiration*:**Acute pulmonary edema**; *Liver*:**Changes in liver weight**
Acetic acid (< 10%)	64-19-7	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 3310 mg/kg; Inhalation-Rat LC50 • 11400 mg/m³ 4 Hour(s); Skin-Rabbit LD50 • 1060 µL/kg; **Irritation:** Eye-Rabbit • 5 mg 30 Second(s)-Rinse • Mild irritation; Skin-Rabbit • 525 mg-Open • Severe irritation
Nitric acid (< 5%)	7697-37-2	**Acute Toxicity:** Inhalation-Rat LC50 • 130 mg/m³ 4 Hour(s); **Reproductive:** Ingestion/Oral-Rat TDLo • 2345 mg/kg (18D preg); *Reproductive Effects:Effects on Newborn*:**Biochemical and metabolic**

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Aspiration Hazard	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met

Carcinogenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**EU/CLP** • Skin Corrosion 1B **OSHA HCS 2012** • Skin Corrosion 1B
Skin sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-RE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-SE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Serious Eye Damage 1

Potential Health Effects

Inhalation

Acute (Immediate) | May cause corrosive burns - irreversible damage.

Chronic (Delayed) | Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

Skin

Acute (Immediate) | Causes severe skin burns and eye damage.

Chronic (Delayed) | Repeated or prolonged exposure to corrosive materials will cause dermatitis.

Eye

Acute (Immediate) | Causes serious eye damage.

Chronic (Delayed) | Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

Ingestion

Acute (Immediate) | May cause irreversible damage to mucous membranes.

Chronic (Delayed) | Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal distrubances.

Key to abbreviations

LC = Lethal Concentration

LD = Lethal Dose

TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

| Material data lacking.

12.2 Persistence and degradability

| Material data lacking.

12.3 Bioaccumulative potential

Material data lacking.

12.4 Mobility in Soil

Material data lacking.

12.5 Results of PBT and vPvB assessment

No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1760	Corrosive liquid, n.o.s. (Nitric Acid, Acetic Acid)	8	II	NDA
TDG	UN1760	CORROSIVE LIQUID, N.O.S.(Nitric Acid, Acetic Acid)	8	II	NDA
IMO/IMDG	UN1760	CORROSIVE LIQUID, N.O.S. (Nitric Acid, Acetic Acid)	8	II	NDA
IATA/ICAO	UN1760	Corrosive liquid, n.o.s. (Nitric Acid, Acetic Acid)	8	II	NDA

14.6 Special precautions for user None known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not relevant.

Section 15 - Regulatory Information

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

SARA Hazard Classifications Acute

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Acetic acid	64-19-7	Yes	Yes	Yes
Nitric acid	7697-37-2	Yes	Yes	Yes
Phosphoric acid	7664-38-2	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Acetic acid	64-19-7	Yes	No	Yes	Yes	No
Nitric acid	7697-37-2	Yes	No	Yes	Yes	No
Phosphoric acid	7664-38-2	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Acetic acid	64-19-7	Yes
Nitric acid	7697-37-2	Yes
Phosphoric acid	7664-38-2	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Acetic acid	64-19-7	B3, E (including 10-80% [Available data does not allow a precise evaluation of the threshold concentration from which solutions meet the B3 criterion], >80%); D2B (3-10%)
• Nitric acid	7697-37-2	C, E (including 61.3%, 67.18%, 70%); E (0.63%, 6.3%)
• Phosphoric acid	7664-38-2	E (including <=85%)

Canada - WHMIS - Ingredient Disclosure List

• Acetic acid	64-19-7	1 %
• Nitric acid	7697-37-2	1 %
• Phosphoric acid	7664-38-2	1 %

Environment

Canada - CEPA - Priority Substances List

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Acetic acid	64-19-7	Not Listed

• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

China - Dangerous Goods List

• Acetic acid	64-19-7	(glacial or solution)
• Nitric acid	7697-37-2	(other than red fuming, with >70% Nitric acid; other than red fuming, with not >70% Nitric acid)
• Phosphoric acid	7664-38-2	(liquid or solid)

China - Export Control List - Part I Chemicals

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Acetic acid	64-19-7	R10 C; R35
• Nitric acid	7697-37-2	C; R35 O; R8
• Phosphoric acid	7664-38-2	C; R34

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Acetic acid	64-19-7	10%<=C<25%: Xi; R:36/38 90%<=C: C; R:35 25% <=C<90%: C; R:34
• Nitric acid	7697-37-2	70%<=C: O; R:8 20%<=C: C; R:35 5%<=C<20%: C; R:34
• Phosphoric acid	7664-38-2	10%<=C<25%: Xi; R:36/38 25%<=C: C; R:34

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Acetic acid	64-19-7	C R:10-35 S:(1/2)-23-26-45
• Nitric acid	7697-37-2	O C R:8-35 S:(1/2)-23-26-36-45
• Phosphoric acid	7664-38-2	C R:34 S:(1/2)-26-45

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Acetic acid	64-19-7	B
• Nitric acid	7697-37-2	B
• Phosphoric acid	7664-38-2	B

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Acetic acid	64-19-7	S:(1/2)-23-26-45
• Nitric acid	7697-37-2	S:(1/2)-23-26-36-45
• Phosphoric acid	7664-38-2	S:(1/2)-26-45

Germany

Environment

Germany - TA Luft - Types and Classes

• Acetic acid	64-19-7	organic Substance: 5.2.5, Class II
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

• Acetic acid	64-19-7	ID Number 93, hazard class 1 - low hazard to waters (>25%)
• Nitric acid	7697-37-2	ID Number 414, hazard class 1 - low hazard to waters (except fuming)
• Phosphoric acid	7664-38-2	ID Number 392, hazard class 1 - low hazard to waters

Germany - Water Classification (VwVwS) - Annex 3

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	500 lb TQ (>=94.5% by weight)
• Phosphoric acid	7664-38-2	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Acetic acid	64-19-7	5000 lb final RQ; 2270 kg final RQ
• Nitric acid	7697-37-2	1000 lb final RQ; 454 kg final RQ
• Phosphoric acid	7664-38-2	5000 lb final RQ; 2270 kg final RQ

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	1000 lb EPCRA RQ
• Phosphoric acid	7664-38-2	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	1000 lb TPQ
• Phosphoric acid	7664-38-2	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	1.0 % de minimis concentration
• Phosphoric acid	7664-38-2	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Acetic acid	64-19-7
• Nitric acid	7697-37-2
• Phosphoric acid	7664-38-2

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Acetic acid	64-19-7	Not Listed
• Nitric acid	7697-37-2	Not Listed
• Phosphoric acid	7664-38-2	Not Listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

H226 - Flammable liquid and vapour
H272 - May intensify fire; oxidizer

Last Revision Date | 09/December/2014

Preparation Date | 09/December/2014

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Key to abbreviations

NDA = No data available