



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA Hazard Communication Standard (29 CFR 1910.1200)

Revision date 25-Sep-2023

Revision Number 1

1. Identification

Product identifier

Product Name Aluminum Etch 40:1:1

Other means of identification

Product Code(s) 8201

UN number or ID number UN3264

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Industrial use
Laboratory use
Industrial Manufacturing (all)

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address

Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI 53925 USA
Phone: (920) 623-2140
Fax: (920) 623-2577
www.columbuschemical.com

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: 1-800-424-9300 for US / 703-527-3887 outside US

Emergency Telephone 911

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Corrosive to metals	Category 1

Hazards not otherwise classified (HNOC)

Not applicable

Label elements**Danger****Hazard statements**

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

H330 - Fatal if inhaled

H290 - May be corrosive to metals.

**Precautionary Statements - Prevention**

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P271 - Use only outdoors or in a well-ventilated area

P284 - Wear respiratory protection

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P234 - Keep only in original packaging

Precautionary Statements - Response

P320 - Specific treatment is urgent (see First-Aid Measures on SDS)

P310 - Immediately call a POISON CENTER or doctor/physician

P321 - Specific treatment (see First-Aid Measures on SDS)

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

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

P363 - Wash contaminated clothing before reuse

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P310 - Immediately call a POISON CENTER or doctor/physician

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P330 - Rinse mouth

P331 - Do NOT induce vomiting

P390 - Absorb spillage to prevent material damage

Precautionary Statements - Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P405 - Store locked up

P406 - Store in corrosive resistant container with resistant inner liner

Precautionary Statements - Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Unknown acute toxicity

2 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

Other information

May be harmful in contact with skin. Harmful to aquatic life.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No	Weight-%	Formula	Molecular Weight
Phosphoric acid	7664-38-2	80-85	H ₃ PO ₄	98.00 g/mol
Water	7732-18-5	Balance	H ₂ O	18.00 g/mol
Nitric acid	7697-37-2	1-2	HNO ₃	63.01 g/mol
Acetic acid	64-19-7	1-2	CH ₃ COOH	60.05 g/mol

4. First-aid measures

Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Inhalation	Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or 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. If breathing is difficult, (trained personnel should) give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately. Delayed pulmonary edema may occur. Get immediate medical attention.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical attention.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical attention.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not breathe vapor or mist. Do not use mouth-to-mouth method if victim ingested or 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. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms	Coughing and/ or wheezing. Difficulty in breathing. Burning sensation.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.
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5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Do not breathe vapor or mist. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Attention! Corrosive material.
Other information	Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.
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Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.
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8. Exposure controls/personal protection

Control parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Phosphoric acid	STEL: 3 mg/m ³ TWA: 1 mg/m ³	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³ (vacated) STEL: 3 mg/m ³	IDLH: 1000 mg/m ³ TWA: 1 mg/m ³ STEL: 3 mg/m ³
Nitric acid	STEL: 4 ppm TWA: 2 ppm	TWA: 2 ppm TWA: 5 mg/m ³ (vacated) TWA: 2 ppm (vacated) TWA: 5 mg/m ³ (vacated) STEL: 4 ppm (vacated) STEL: 10 mg/m ³	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³
Acetic acid	STEL: 15 ppm TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 25 mg/m ³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m ³ STEL: 15 ppm STEL: 37 mg/m ³

Appropriate engineering controls

Engineering controls Showers
 Eyewash stations
 Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles. Face protection shield.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General hygiene considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state Liquid
Appearance Clear
Color Colorless
Odor No information available
Odor threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling	No data available	None known

range		
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	None known
Lower flammability or explosive limits	No data available	None known
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	1.6513	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<u>Other information</u>		
Explosive properties	No information available	
Oxidizing properties	No information available	
Softening point	No information available	
Molecular weight	No information available	
VOC content	No information available	
Liquid Density	No information available	
Bulk density	No information available	

10. Stability and reactivity

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat.
Incompatible materials	Oxidizing agent. Acids. Bases.
Hazardous decomposition products	None known based on information supplied.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. Fatal if inhaled. (based on components). Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage

including blindness. May cause irreversible damage to eyes.

Skin contact

Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May be harmful in contact with skin.

Ingestion

Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics**Symptoms**

Coughing and/ or wheezing. Difficulty in breathing. Redness. Burning. May cause blindness.

Acute toxicity**Numerical measures of toxicity**

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

ATEmix (oral)	1,780.60 mg/kg
ATEmix (dermal)	3,038.70 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-vapor)	99,999.00 mg/l
ATEmix (inhalation-dust/mist)	0.250 mg/l

Unknown acute toxicity

2 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Phosphoric acid	= 1530 mg/kg (Rat)	= 2740 mg/kg (Rabbit)	> 850 mg/m ³ (Rat) 1 h
Water	>90 mL/kg (Rat)	-	-
Nitric acid	-	-	= 2500 ppm (Rat) 1 h
Acetic acid	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Skin corrosion/irritation**

Classification based on data available for ingredients. Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

Respiratory or skin sensitization

No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

No information available.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
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Nitric acid	-	-	-	X
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Legend**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X - Present

Reproductive toxicity No information available.**STOT - single exposure** No information available.**STOT - repeated exposure** No information available.**Target organ effects** Respiratory system, Eyes, Skin, Teeth.**Aspiration hazard** No information available.**Other adverse effects** No information available.**Interactive effects** No information available.**12. Ecological information****Ecotoxicity** Harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Nitric acid	-	96h LC50: = 72 mg/L (Gambusia affinis)	-	-
Acetic acid	-	LC50: =79mg/L (96h, Pimephales promelas) LC50: =75mg/L (96h, Lepomis macrochirus)	-	EC50: =65mg/L (48h, Daphnia magna)

Persistence and degradability No information available.**Bioaccumulation****Component Information**

Chemical name	Partition coefficient
Phosphoric acid	-0.9
Nitric acid	-2.3
Acetic acid	-0.17

Other adverse effects No information available.**13. Disposal considerations****Disposal methods****Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging	Do not reuse empty containers. Dispose of contents/containers in accordance with local regulations.
California Hazardous Waste Status	This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. Transport information

<u>DOT</u>	Regulated
UN number or ID number	UN3264
Proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s., (phosphoric acid, acetic acid, nitric acid)
Transport hazard class(es)	8
Packing group	II
DOT Marine Pollutant	No
<u>TDG</u>	Regulated
UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s., (phosphoric acid, acetic acid, nitric acid)
Transport hazard class(es)	8
Packing group	II
<u>ICAO (air)</u>	Regulated
UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s., (phosphoric acid, acetic acid, nitric acid)
Transport hazard class(es)	8
Packing group	II
<u>IATA</u>	Regulated
UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s., (phosphoric acid, acetic acid, nitric acid)
Transport hazard class(es)	8
Packing group	II
<u>IMDG</u>	Regulated
UN number or ID number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s., (phosphoric acid, acetic acid, nitric acid)
Transport hazard class(es)	8
Packing group	II

15. Regulatory information

International Inventories

TSCA	Complies.
DSL/NDL	Complies.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AIIC	Contact supplier for inventory compliance status.
NZIoC	Contact supplier for inventory compliance status.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Nitric acid 7697-37-2	1.0

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Phosphoric acid	5000 lb	-	-	X
Nitric acid	1000 lb	-	-	X
Acetic acid	5000 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Phosphoric acid	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Nitric acid	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ
Acetic acid	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Phosphoric acid	X	X	X
Water	-	-	X
Acetic acid	X	X	X
Nitric acid	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 4	Flammability 0	Instability 0	Special hazards -
HMIS	Health hazards 4	Flammability 0	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AELG(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 National Institute of Technology and Evaluation (NITE)
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 World Health Organization

Revision date 25-Sep-2023

Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet