

Revision: 1.1

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Section 1. Identification

1.1 Product Identifier 4507

Product Name ETCH SOLUTION 2

CAS Number Mixture

REACH Registration No A registration number is not available as the substance or its uses are exempt, the annual tonnage does not require a registration or the registration is envisaged for a later date.

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

Uses of Material Chemical for industrial and laboratory use. Not suitable for domestic use.

1.3 Supplier Vickers Laboratories Ltd



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Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to regulation 1272/2008/EC

Skin corrosion/irritation, category 1B

H314: Causes severe skin burns and eye damage.

2.2 Label elements

Labelling according to regulation 1272/2008/EC

Signal word Danger

Hazard Pictograms



Hazard Statements Causes severe skin burns and eye damage.

Precautionary Statements Wear protective gloves / protective clothing / eye protection. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing.

Section 3. Composition

3.1 Substances

Component	CAS No.	EEC No.	REACH No.	Conc w/w	CLP Classification (1272/2008/CE)
Nitric acid	7697-37-2	231-714-2	01-2119487297-23-XXXX	2%	Ox. Liq. 3, Skin Corr. 1A, Acute Tox. 3 (I)
Hydrofluoric acid	7664-39-3	231-634-8		1%	Acute Tox. 1 (D), Acute Tox. 2 (O), Acute Tox. 2 (I), Skin Corr. 1A

Section 4. First Aid

4.1 Description of first aid measures

Eyes	Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION URGENTLY.
Skin	Wash off skin thoroughly with water. If calcium gluconate gel is available immediately rub into all affected areas and massage until pain goes. If not wash with soap and water for 30 minutes. OBTAIN MEDICAL ATTENTION URGENTLY.
Inhalation	Remove from exposure. Keep warm and at rest. If there is difficulty in breathing give oxygen if available. If breathing stops or shows signs of failing, apply artificial resuscitation. If conscious place in a sitting position. OBTAIN MEDICAL ATTENTION URGENTLY.
Ingestion	If conscious give plenty of water to drink. Do not induce vomiting. If unconscious place in the recovery position. If conscious wash out mouth thoroughly with water and give milk or calcium gluconate to drink. OBTAIN MEDICAL ATTENTION URGENTLY.
Personal protection for first aiders	Wear protective gloves / eye protection.

4.2 Most important symptoms and effects, both acute & delayed.

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed.

No further relevant information available.

Section 5. Fire Fighting

5.1 Extinguishing media

Extinguishing Media	Dry chemical powder.
Unsuitable Media	Do not allow water to come into direct contact with material.

5.2 Special hazards arising from the substance or mixture

Hazards	May evolve toxic fumes if involved in a fire.
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5.3 Advice for firefighters

Advice for firefighters	Evacuate area immediately. Keep up wind. Avoid exposure to toxic vapours and fumes. Fire-fighters should wear protective clothing and breathing apparatus.
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Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Protection	Avoid breathing vapour. Use approved personal protective equipment. Evacuate area immediately. Do not allow general use of area until it is safe to do so.
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6.2 Environmental precautions

Environmental	Keep non-neutralised material out of sewers, storm drains, surface waters and soil. Notify the Environmental Agency and local Environmental Health Officer if major spillage occurs.
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6.3 Methods and material for containment and cleaning up

Major Spillage	Treat with massive dilution with water to stop fuming. Contain and absorb on inert material. Neutralise spill with calcium hydroxide (slaked lime) to precipitate the insoluble fluoride. Wash area down with copious amounts of water.
Minor Spillage	Treat with massive dilution with water to stop fuming. Contain and absorb on inert material. Neutralise spill with calcium hydroxide (slaked lime) to precipitate the insoluble fluoride. Wash area down with copious amounts of water.

6.4 Reference to other sections

See section 8.2 for information on protective equipment and section 13 for information on disposal.

Section 7. Storage & Handling

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Do not breath vapours. Do not allow to contaminate clothing.
Ensure Local Exhaust Ventilation maintains vapour concentrations below the recommended limits.

7.2 Conditions for safe storage, including any incompatibilities

Well ventilated, cool, dry storage .

7.3 Specific end use(s)

See section 1.2.

Section 8. Workplace Exposure & Personal Protection

8.1 Control parameters

Component	CAS No	Concentration	Workplace Exposure Limits			
			Long Term (8hr TWA)		Short Term 15min period	
Nitric acid	7697-37-2	2%	-	-	1.0 ppm	2.8 mg/m-3
Hydrofluoric acid	7664-39-3	1%	1.8 ppm	1.5 mg/m-3	3.0 ppm	2.5 mg/m-3

Exposure data source(s) IOELV: Indicative Occupational Exposure Limit Value.

8.2 Exposure controls

Respiratory Protection	Use L.E.V. or natural ventilation to maintain vapour concentrations below exposure limits. If not, use a well maintained chemical cartridge respirator, or use self contained breathing apparatus.
Hand Protection	Use PVC gauntlets.
Eye Protection	Use chemical full face shield.
Skin Protection	Wear PVC oversuit.
Special Hazards	No special precautions required.

Section 9. Physical & Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Colourless fuming liquid.
Odour	Pungent and intensely irritating.
pH	1 @ 20°C
Boiling Point	90°C
Melting Point	-40°C
Flash Point	Not applicable
Upper Flammable Limit	Not applicable
Lower Flammable Limit	Not applicable
Auto Ignition	Not applicable
Explosive Properties	No.
Oxidising Properties	No.
Vapour Pressure	400mmHg @ 2°C

Relative Density	1.1000
Water Solubility	Completely soluble in water but reacts vigorously with much evolution of heat and fumes.

9.2 Other information

No data available.

Section 10. Stability & Reactivity

10.1 Reactivity	No data available.
10.2 Chemical Stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	No data available.
10.4 Conditions to Avoid	No specific conditions.
10.5 Incompatible Materials	Alkalis. Potassium permanganate. Reacts with most metals to produce extremely flammable hydrogen gas.
10.6 Hazardous Decomposition Products	Will decompose to emit very toxic and extremely irritant fumes of hydrogen fluoride.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Eyes	The liquid, solutions and vapour are extremely irritating to eyes and can cause chemical eye burns. Damage can range from severe irritation and corneal scarring to permanent blindness.
Skin	The liquid and solutions will cause severe burns. Contact with dilute solutions and low vapour concentrations may not lead to immediate pain but damage begins at once. Burns produced by solutions of under 20% are shown by pain and erythema and may take 24 hours to become evident. Burns from 20-50% solutions become apparent in 1-8 hours, while solutions over 50% cause rapid tissue damage and immediate pain. Marked dermal injury and systemic poisoning may result in humans after skin contact with solutions of 2% for as short as 1 hour.
LD50 Skin	Not available
Ingestion	Ingestion causes necrosis of the oesophagus and stomach, nausea, vomiting, diarrhoea, circulatory collapse and may be fatal if swallowed. Ingestion of an estimated 1.5g has led to sudden death.
LD50 Oral	80mg/kg Human
Inhalation	Exposure to vapour concentrations above the occupational exposure limits will produce severe irritation of the eyes, nose, throat and respiratory tract. Prolonged exposure to vapour concentrations above the occupational exposure limits may have serious effects with initially no pathological signs. Further exposure may cause acute pulmonary oedema often with a serious outcome.
LD50 Inhalation	Not available
TCLo	Not available
Carcinogenicity	A cluster of laryngeal cancers has been reported in workers exposed to a combination of hydrogen fluoride, traces of carcinogenic metals and asbestos.
Mutagenicity	May be a mutagen.
Reproductive Effects	No information is available.
Other Information	The irritant effect provides warning that control of exposure is needed.

Section 12. Ecological

12.1 Toxicity	Fluorides are harmful to the environment.
LC50 Algal	Not available
LC50 Crustacea	Not available
LC50 Fish	Not available
12.2 Persistence and degradability	No data available.
12.3 Bioaccumulative potential	No data available.
12.4 Mobility in soil	No data available.
12.5 Results of PBT & vPvB assessment	Assessment not required.

12.6 Other adverse effects None known at present.

Section 13. Disposal Considerations

13.1 Waste treatment methods

Disposal Methods Very carefully dilute with water to stop fuming. Neutralise spill with calcium hydroxide (slaked lime) to precipitate the insoluble fluoride. The liquors can be run to drain and the solid disposed of at a licensed land-fill site.

Contaminated Packaging Very carefully wash out containers with water. Use a licensed waste disposer.

Section 14. Transport Information

14.1 UN Number 1760

14.2 Proper Shipping Name Corrosive liquid, N.O.S. (Nitric Acid, Hydrofluoric Acid)

14.3 Transport classes

UN classification	8
Subsidiary hazard(s)	None
Transport category	2
ADR Hazard ID	80
Tunnel Restriction Code	E

14.4 Packing Group II

14.5 Environment hazards See section 12.

14.6 Special precautions for user No special precautions required.

14.7 Transport in bulk Not transported in bulk.



Section 15. Regulatory Information

15.1 Safety, health and environment regulations specific for substance/mixture.

Classification, Labeling & Packaging of Substances & Mixtures Regulations (1272/2008/CE)

Classification Skin corrosion/irritation, category 1B

Signal word Danger

Hazard Pictograms



Hazard Statements H314
Causes severe skin burns and eye damage.

Precautionary Statements P280, P301+P330+P331, P303+P361+P353, P305+P351+P338
Wear protective gloves / protective clothing / eye protection. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do and continue rinsing.

15.2 Chemical safety assessment

Assessment not required.

Section 16. Other Information

The information contained in this document only covers the hazards presented by this material, it DOES NOT constitute a workplace risk assessment. See sections 11 for toxicological information and section 12 for ecological information.

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