1. Identification

1.1. Product identifier

Product Identity ULTRA CLEAN ETCH

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

Intended use See Technical Information Sheet.

Application Method See Technical Information Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name Topkote Products
2410 Highway 15 South
Sumter, SC 29150

Telephone No. 803-481-3400
Fax: 803-481-3776

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Skin Corr 1A;H314 Causes severe skin burns and eye damage.

Eye Dam. 1 ;H318 Causes serious eye damage.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Warning

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

[Prevention]:

P260 Do not breathe mist / vapors / spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves / eye protection / face protection.

[Response]:

P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361 +353 IF ON SKIN (or hair): Remove I Take off immediately all contaminated clothing. Rinse skin with

water / shower.

P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+351 +338 IF IN EYES: Rinse continuously 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.

[Storage]:

P405 Store locked up.

[Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
HYDROFLUORIC ACID CAS#: 7664-39-3	<40	Acute toxicity 3 Skin corrosion/irritation 1 Eye damage/ eye irritation 1	[1]
PHOSPHORIC ACID CAS#: 7664-38-2	>20	Skin Corr. 1B, H314 Eye Dam. 1, H318	[1][2]
SURFACTANT CAS#: 9016-45-9	<10	Skin Corrosion/Irritation: 3 Eye Damage/Irritation: 2B	[1]
WATER CAS#: N/A	Balance	Not Classified	[1]

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.
[1] Substance classified with a health or environmental hazard.
[2] Substance with a workplace exposure limit.
[3] PBT-substance or vPvB-substance.
*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

Eyes Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Skin Flush skin with running water for a minimum of 20 minutes. Start flushing while removing

contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport.

While the patient is being transported to a medical facility, apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues.

Ingestion If victim is alert and not convulsing, rinse mouth and give % to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY contact local poison control center. Vomiting may need to be induced but should be directed by a physician or a poison control center. IMMEDIATELY transport victim to an emergency facility.

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

Overview **IMMEDIATE CONCERNS:** CAUTION: May cause eye or skin burns. Avoid vapor.
POTENTIAL SIDE EFFECTS
EYES: Tissue destruction and permanent eye damage may occur if not treated immediately.
SKIN: May be corrosive and cause severe burns.
INGESTION: Corrosive to mucous membranes of the mouth, esophagus, stomach & throat.
INHALATION: Avoid mist, can be a severe irritant.
ACUTE TOXICITY: Eye, skin, lung burning may be caused with exposure to mist. Avoid mist.
TARGET ORGAN STATEMENT: Contains material which may cause damage to gastrointestinal tract and respiratory tract.

Note to Physician: All treatments should be based on observed signs and symptoms of distress in the patient. Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema and other lung diseases and chronic nose, sinus or throat conditions. Severity of the burn is generally determined by the concentration of the solution and the duration of exposure. In the event of skin or eye contact, immediate and thorough flushing is essential. Continued washing of the effected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Cream or ointments should not be applied before or during the washing phase of the treatment. See section 2 for further details.

Eyes Causes serious eye damage.

Inhalation Causes serious eye damage.

5. Fire-fighting measures

5.1. Extinguishing media

For small fires, use dry chemical or carbon dioxide. For large fires, flood fire area with water from a distance. Expect violent reaction with water. Do not get solid stream of water on spilled material.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Oxides of sulfur at high temperatures. Hazardous gases may evolve on contact with

chemicals such as cyanides, sulfides, and carbides.

Do not breathe mist / vapors / spray.

5.3. Advice for fire-fighters

Wear self-contained breathing apparatus and protective clothing.

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6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

For Large Spills: Flush spill area with water spray. Prevent run-off from entering drains, sewers, or streams, collect run-off.

7. Handling and storage

7.1. Precautions for safe handling

Wear appropriate Personal Protection Equipment. Do not breathe sprays or mists. Do not ingest. Do not get in eyes, on skin or on clothing. Keep ignition sources away from sulfuric acid storage, handling and transportation equipment.

Handling Procedures and Equipment: Carbon steel or stainless steel materials are suitable for use for acid concentrations equal to or greater than 93%. However, the effect of lower concentrations on the materials of construction can be very complex. Contact product supplier for specific recommendations when handling sulfuric acid at strengths less than 77%.

Sulfuric acid will attack some forms of plastics and coatings. Always add acid to water - not water to acid. If kept in upper floors of building, floors should be acid proof with drains to a recovery tank.
See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handle containers carefully to prevent damage and spillage.

Store between -5C and 40C.

Incompatible materials: Acids react with most metals to release hydrogen gas which can form explosive mixtures in air. Water, alkaline solutions, metals, metal powder, carbides, chlorates, fuminates, nitrates, picrates, strong oxidizers, reducers, or combustible organics.
Hazardous gases may evolve on contact with chemicals such as cyanides, sulfides, and carbides.
Storage Temperature: Store above freezing point. Elevated temperatures will increase the corrosion rate of most metals.

Storage Requirements: Store packaged acid in a dry, well, ventilated location away from combustibles, oxidizers, bases, or metallic powders. Storage tanks should be protected from water ingress, be well ventilated, and maintained structurally in a safe and reliable condition.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
7664-39-3	HYDROFLUORIC ACID	OSHA	1 mg/m3
		ACGIH	1 mg/m3
		NIOSH	No Established Limit
		Supplier	No Established Limit
7664-38-2	PHOSPHORIC ACID	OSHA	1 mg/m3
		ACGIH	1 mg/m3
		NIOSH	No Established Limit
		Supplier	No Established Limit
9016-45-9	SURFACTANT	OSHA	150 ppm
		ACGIH	150 ppm
		NIOSH	No Established Limit
		Supplier	No Established Limit
N/A	WATER	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
7664-39-3	HYDROFLUORIC ACID	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
7664-38-2	PHOSPHORIC ACID	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
9016-45-9	SURFACTANT	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
N/A	WATER	OSHA	Select Carcinogen: No

		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory	A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, dust, and mist cartridges for concentrations up to 10 mg 1m3. An air-supplied respirator if concentrations are higher or unknown.
Eyes	Tight-fitting chemical goggles and face shield.
Skin	Impervious (Le., neoprene, PVC) gloves, coveralls, boots and/or other acid resistant protective clothing.
Engineering Controls	Local exhaust ventilation required.
Other Work Practices	Where there is a danger of spilling or splashing, acid resistant aprons or suits should be worn. Trouser legs should be worn outside (not tucked in) rubber boots. Safety showers and eyewash fountains should be installed in storage and handling areas. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Clear or Colored Liquid
Odor	Sharp
Odor threshold	Not Measured
pH	Not Measured
Melting point / freezing point	77.67%: -11.2° C (+11.6° F); 93.19%: -29.5° C (-21.1° F); 98%: -1.1° C (30° F)
Initial boiling point and boiling range	77.67%: 193° C (380° F); 93.19%: 276° C (529° F); 98%: 330° C (626° F)
Flash Point	None
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** 135C(275F): NA **Upper Explosive Limit:** 199C(390F): NA
Vapor pressure (Pa)	77.67%: 1.2 mmhg; 93.19%: 0.0016 mmhg; 98%: 0.002 mmhg (at 40 *C/102* F)
Vapor Density	3.4, sulfuric acid component (Air = 1)
Specific Gravity	77.67%: 1.7059; 93.19%: 1.8354; 98%: 1.8437 (at 15 C/60 F)
Solubility in Water	Insoluble
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	(ASTM D 2155): Not combustible

Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
Volatiles (% by weight)	NA
Octanol/Water Partition Coefficient	NA

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

Reacts with some bases.

10.4. Conditions to avoid

Keep away from extreme heat and extreme cold.

10.5. Incompatible materials

Acids react with most metals to release hydrogen gas which can form explosive mixtures in air. Water, alkaline solutions, metals, metal powder, carbides, chlorates, fuminates, nitrates, picrates, strong oxidizers, reducers, or combustible organics.
Hazardous gases may evolve on contact with chemicals such as cyanides, sulfides, and carbides.

10.6. Hazardous decomposition products

Oxides of sulfur at high temperatures. Hazardous gases may evolve on contact with chemicals such as cyanides, sulfides, and carbides.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
HYDROFLUORIC ACID (7664-39-3)	No data available	No data available	850 mg/m3 rat	No data available	No data available
PHOSPHORIC ACID (7664-38-2)	1530 mg/kg Rat	2730 mg/kg Rabbit	> 850 mg/m³	No data available	No data available
SURFACTANT (9016-45-9)	1310 mg/kg;	2000 mg/kg	No data available	No data available	No data available
Water (N/A)	No data available	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable

Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	1A	Causes severe skin bums and eye damage.
Serious eye damage/irritation	1	Causes serious eye damage.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and GHS and is not classified as dangerous for the environment, but contains substance(s) dangerous for the environment. See section 3 for details

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
HYDROFLUORIC ACID (7664-39-3)	Not Available	270 mg/l	Not Available
PHOSPHORIC ACID (7664-38-2)	138 mg/l	Not Available	Not Available
SURFACTANT (9016-45-9)	Not Available	Not Available	Not Available
Water (N/A)	Not Available	Not Available	Not Available

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	UN 1790	UN 1790	UN 1790
14.2. UN proper shipping name	UN 1790, Hydrofluoric acid solution, 8, II	Hydrofluoric acid solution	Hydrofluoric acid solution
14.3. Transport hazard class(es)	**DOT Hazard Class: 8(6.1)**	**IMDG:** 8(6.1) **Sub Class:** Not Applicable	**Air Class: 8(6.1)**
14.4. Packing group	II	II	II

14.5. Environmental hazards

IMDG Marine Pollutant: No

14.6. Special precautions for user

No further information

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification D2B E

US EPA Tier II Hazards

Fire: No
Sudden Release of Pressure: No
Reactive: Yes
Immediate (Acute): Yes
Delayed (Chronic): No

Note: Strong inorganic acid mists containing sulfuric acid are listed on the California Proposition 65 Carcinogen List. [Sulfuric acid, in and of itself, is not listed under Proposition 65. However, if one has sulfuric acid, which through its intended use generates an acid mist that in turn contains sulfuric acid that would meet the listing. The term "strong" does not refer to the concentration of the acid, but rather the strength of the acid. The basis for the listing of strong inorganic acid mists containing sulfuric acid was the formal identification by the National Toxicology Program (NTP), in its Ninth Report on Carcinogens, that this chemical mixture is "known to be a human carcinogen." (Public notice available at http://www.oehha.ca.gov/prop65/CRNR_notices/adminJisting/intent_toJistlnoil19b4.html.)]

EPCRA 311/312 Chemicals and RQs: (lbs)

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Extremely Hazardous:

HYDROFLUORIC ACID

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

HYDROFLUORIC ACID

Pennsylvania RTK Substances (>1%):

HYDROFLUORIC ACID

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H314 Causes severe skin burns and eye damage.

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

The opinions expressed are those of qualified experts within Sumter Coatings Inc. We believe that the information contained is current as of the date of the Safety Data Sheet. Since the use of this information and of these opinions and the conditions of the use of the product are not within the control of Sumter Coatings Inc., it is the user's obligation to determine the conditions of safe use of the product.

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