Complying with 29 CFR 1910.1200 standard (HazCom 2012) SAFETY DATA SHEET

ARMOUR ETCH

Section 1. Identification

Product trade name	: ARMOUR ETCH
Product code	: 15-0150, 15-0151, 15-0200, 15-0250, 15-0260, 10-0100, 10-0101
Material uses	: Etching and frosting of glass.
Supplier	: ARMOUR PRODUCTS
	176-180 FIFTH AVENUE
	HAWTHORNE, NJ 07506 USA
	PHONE: 973-427-8787
e-mail address of person responsible for this SDS	: SDS@ARMOURPRODUCTS.COM
Emergency telephone number (with hours of operation)	: 1-800-424-9300; INTNL: 1-703-527-3887

Section 2. Hazards identification

OSHA/HCS status	:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	:	CUTE TOXICITY (oral) - Category 4 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1
Classification code :	:	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318
Hazards not otherwise classified	:	None known.
GHS label elements		
Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	Harmful if swallowed. Causes severe skin burns and eye damage.
Contains	:	ammonium bifluoride; sodium bifluoride
Precautionary statements		
Prevention	:	Wear suitable gloves. Wear eye or face protection. Wear protective clothing. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Response	:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Supplemental label elements	:	

ARMOUR ETCH

Section 3. Composition/information on ingredients

Substance/mixture

: Mixture

Ingredient name	Identifiers	%
mmonium bifluoride	215-676-4	20 - 40
sodium bifluoride	215-608-3	10 - 20
citric acid	201-069-1	10 - 20
sulphuric acid	231-639-5	5 - 10

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
Inhalation	: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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significant effects or critical hazards. evere burns.
evere burns.
swallowed. May cause burns to mouth, throat and stomach.
ymptoms may include the following:
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Section 4. First aid measures

:	Adverse symptoms may include the following: pain or irritation redness blistering may occur
:	Adverse symptoms may include the following: stomach pains
lical	attention and special treatment needed, if necessary
:	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
:	No specific treatment.
:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	: lical : :

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media	
Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: None known.
Specific hazards arising from the chemical	: In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds metal oxide/oxides
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode

Section 6. Accidental release measures

Personal precautions, protect	ive	equipment and emergency procedures
For non-emergency personnel	:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

: 14/01/2020

Section 6. Accidental release measures

Small spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Exposure limits
ACGIH TLV (United States, 3/2016). TWA: 2,5 mg/m ³ , (as F) 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 2,5 mg/m ³ , (as F) 8 hours. OSHA PEL (United States, 6/2016). TWA: 2,5 mg/m ³ , (as F) 8 hours. OSHA PEL Z2 (United States, 2/2013). TWA: 2,5 mg/m ³ 8 hours. Form: Dust
ACGIH TLV (United States, 3/2016). TWA: 2,5 mg/m ³ , (as F) 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 2,5 mg/m ³ , (as F) 8 hours. OSHA PEL (United States, 6/2016). TWA: 2,5 mg/m ³ , (as F) 8 hours. OSHA PEL Z2 (United States, 2/2013). TWA: 2,5 mg/m ³ 8 hours. Form: Dust
None.
OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m ³ 8 hours. NIOSH REL (United States, 10/2013).

Section 8. Exposure controls/personal protection

TWA: 1 mg/m ³ 10 hours.
ACGIH TLV (United States, 3/2016).
TWA: 0,2 mg/m ³ 8 hours. Form: Thoracic
fraction
OSHA PEL (United States, 6/2016).
TWA: 1 mg/m ³ 8 hours.

Appropriate engineering controls	:	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Environmental exposure controls	:	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
Individual protection measu	<u>ires</u>	
Hygiene measures	:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended : butyl rubber, Teflon, Viton®.
Body protection	:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance		
Physical state	:	Liquid. [Gel]
Color	:	White., Light brown.
Odor	:	Pungent.
Flash point	:	Closed cup: Not applicable.
Flammability of the product	:	None available.
the second se		

The information presented in this section does not serve as specifications.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability Conditions of instability	The product is stable.Avoid increased storage temperature.

ARMOUR ETCH

Section 10. Stability and reactivity

Possibility of hazardous : Under normal conditions of storage and use, hazardous reactions will not occur. reactions

Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Product/ingredient name	Result	Test	Dose	Exposure
mmonium bifluoride	LD50 Oral	OCDE 401	130 mg/kg	-
sodium bifluoride	LD50 Oral	-	160 mg/kg	-
citric acid	LD50 Oral	-	3 g/kg	-
sulphuric acid	LD50 Oral	-	2140 mg/kg	-

Conclusion/Summary : Harmful if ingested.

Irritation/Corrosion

Acute toxicity

Product/ingredient name	Result	Test	Score	Exposure	Observation
¢ítric acid	Eyes - Severe irritant	-	-	24 hours 750	-
				Micrograms	

Conclusion/Summary	:
Skin	: Causes burns.
Eyes	: Causes serious eye damage.
Sensitization	
Conclusion/Summary	: Not available.
Mutagenicity	
Conclusion/Summary	: Not available.
Carcinogenicity	
Conclusion/Summary	: Not available.
Reproductive toxicity	
Conclusion/Summary	: Not available.
Teratogenicity	
Conclusion/Summary	: Not available.

<u>Specific target organ toxicity (single exposure)</u> Not available.

Specific target organ toxicity (repeated exposure) Not available.

Aspiration hazard

Not available.

Delayed and immediate effec	ts and also chronic effects from short and long term exposure
<u>Short term exposure</u>	
Potential immediate effects	: Not available.
Potential delayed effects	: Not available.
<u>Long term exposure</u>	

Section 11. Toxicological information

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.
Potential chronic health effe	<u>cts</u>
Conclusion/Summary	: Not available.
General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Test	Species	Exposure
ammonium bifluoride	Acute LC0 237 mg/l Fresh water	-	Fish - Brachydanio rerio	96 hours
	Acute LC100 562 mg/l Fresh water	-	Fish - Brachydanio rerio	96 hours
sodium bifluoride	Acute EC50 43 mg/l Fresh water	-	Algae	96 hours
	Acute EC50 26 mg/l Fresh water	-	Crustaceans - Daphnia magna	48 hours
	Acute LC50 51 mg/l Fresh water	-	Fish - Salmo gairdneri	96 hours
	Chronic NOEC 50 mg/l Fresh water	-	Algae	7 days
	Chronic NOEC 8,9 mg/l Fresh water	-	Crustaceans - Daphnia magna	21 days
	Chronic NOEC 4 mg/l Fresh water	-	Fish - Oncorhynchus mykiss	21 days
citric acid	Acute LC50 160000 μg/l Marine water	-	Crustaceans - Carcinus maenas - Adult	48 hours
sulphuric acid	Acute LC50 42500 μg/l Marine water	-	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 42 ppm Fresh water	-	Fish - Gambusia affinis - Adult	96 hours

Persistence and degradability

Conclusion/Summary

: Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
cide citrique	-1,64	-	low

Mobility in soil

Soil/water partition coefficient (Koc)

: Not available.

Other adverse effects

: No known significant effects or critical hazards.

Date of issue/Date of revision	: 14/01/2020	
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Section 13. Disposal considerations

Disposal methods	: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers
	contact with soil, waterways, drains and sewers.

Section 14. Transport information	Section	14.	Transport	information
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	DOT Classification	TDG Classification	Mexico Classification	IMDG	ΙΑΤΑ
UN number	UN3260	UN3260	UN3260	UN3260	UN3260
UN proper shipping name	Corrosive solid, acidic, inorganic, n.o.s. (ammonium bifluoride, sulphuric acid, mixture) RQ (ammonium bifluoride, sodium bifluoride)	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O. S. (ammonium bifluoride, sulphuric acid, mixture)	SOLIDO CORROSIVO, ACIDO, INORGANICO, N. E.P. (ammonium bifluoride, sulphuric acid, mixture)	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O. S. (ammonium bifluoride, sulphuric acid, mixture)	Corrosive soliid, acidic, inorganic, n.o.s. (ammoniun bifluoride, sulphuric acid, mixture)
Transport hazard class(es)	8	8	8	8	8
Packing group	Ш	П	Ш	Ш	11
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Reportablequantity454,55 lbs / 206,36 kgPackage sizesshipped inquantities lessthan the productreportablequantity are notsubject to the RQ(reportablequantity)transportationrequirements.Limited quantityYes.PackaginginstructionPassengeraircraftQuantity limitation:15 KCargo aircraft	Froduct classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2. 40-2.42 (Class 8). Explosive Limit and Limited Quantity Index 1 Passenger Carrying Road or Rail Index 1 Special provisions 16	<u>Special</u> <u>provisions</u> 274	Emergency schedules (EmS) F-A, S-B Special provisions 274 IMDG Code Segregation group 1 - Acids 2 - Ammonium compounds	Passenger and Cargo Aircraft Quantity limitation 15K Packaging instructions: 851 Cargo Aircraft Only Quantity limitation: 50 K Packaging instructions: 863 Limited Quantities - Passenger Aircraft Quantity limitation: 5 k Packaging instructions: Y844 Special provisions A803

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tion 14. Transport ii	ion 14. Transport information				
Quantity limitation: 50 K					
<u>Special</u> provisions 386, B2, IB2, T11, TP2, TP27					

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according : Not available. to Annex II of MARPOL and the IBC Code

Section 15. Regulatory information

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	: Not listed
Clean Air Act Section 602 Class I Substances	: Not listed
Clean Air Act Section 602 Class II Substances	: Not listed
DEA List I Chemicals (Precursor Chemicals)	: Not listed
DEA List II Chemicals (Essential Chemicals)	: Listed

SARA 302/304

Composition/information on ingredients

			SARA 302 T	PQ	SARA 304 F	Q
Name	%	EHS	(lbs)	(gallons)	(lbs)	(gallons)
■ulphuric acid	5 - 10	Yes.	1000	65,2	1000	65,2

SARA 304 RQ

: 16666,7 lbs / 7566,7 kg

SARA 311/312 Classification

: Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure		Immediate (acute) health hazard	Delayed (chronic) health hazard
ammonium bifluoride sodium bifluoride citric acid	10 - 20	No.	No. No. No.	No.	Yes.	No. No. No.
sulphuric acid	5 - 10	No.	No.	No.	Yes.	No.

SARA 313

	Product name	%
Form R - Reporting requirements	ammonium bifluoride sulphuric acid	20 - 40 5 - 10
Supplier notification	ammonium bifluoride sulphuric acid	20 - 40 5 - 10

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

ARMOUR ETCH

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Class	sification	Justification
Cute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318		Calculation method Calculation method Calculation method
History		
Date of printing	: 14/01/2020	
Date of issue/Date of revision	: 14/01/2020	
Date of previous issue	: 18/04/2016	
Version	: 2.02	
Key to abbreviations	IATA = Internationa IBC = Intermediate IMDG = Internation LogPow = logarithn MARPOL = Interna	ation Factor rmonized System of Classification and Labelling of Chemicals al Air Transport Association Bulk Container al Maritime Dangerous Goods n of the octanol/water partition coefficient tional Convention for the Prevention of Pollution From Ships, 1973 Protocol of 1978. ("Marpol" = marine pollution)
References	: Not available.	

Indicates information that has changed from previously issued version.

Notice to reader

The information contained in this document is provided as a guideline; it is based on the extent of ARMOUR's knowledge regarding the product on the date indicated above. It applies to the product as is, in conformity with the specifications provided by ARMOUR*.

Should the product undergo chemical transformation or be combined or mixed with other substances, it is the sole responsibility of the user to ensure that no new danger appear. Given that the use of this information is beyond the control of ARMOUR*, ARMOUR* provides no warranty, whether express or implied, and assumes no responsibility, regarding the use of this information and of the user's product.

Section 16. Other information

ARMOUR PRODUCTS 176-180 FIFTH AVENUE HAWTHORNE, NJ 07506 USA PHONE: 973-427-8787