Reviewed on 07/25/2024 Printing date 07/25/2024

### 1 Identification

· Product identifier

· Trade name: MAE Solution (Acid Etch Mixture)

· Article number: EP047

Details of the supplier of the safety data sheet

· Manufacturer/Supplier: Aqua Solutions, Inc. 6913 Highway 225 DEER PARK, TX 77536 USA800-256-2586

· Information department:

Technical Coordinator

Sherman Nelson shermann@aquasolutions.org

Emergency telephone number: Chemtrec: 800-424-9300 Canutec: 613-996-6666



# 2 Hazard(s) identification

· Classification of the substance or mixture



GHS02 Flame

Flammable Liquids 3 H226 Flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Toxicity - Oral 2 H300 Fatal if swallowed. Acute Toxicity - Dermal 1 H310 Fatal in contact with skin.

Acute Toxicity - Inhalation 3 H331 Toxic if inhaled.



GHS05 Corrosion

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

Eye Damage 1 H318 Causes serious eye damage.



Sensitization - Skin 1 H317 May cause an allergic skin reaction.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). (Contd. on page 2)

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#### · Hazard pictograms









GHS02

GHS05 GHS06 GHS07

#### · Signal word Danger

#### · Hazard-determining components of labeling:

Nitric Acid

Hydrofluoric Acid 49-51% Aqueous Solution

Acetic Acid. Glacial

#### · Hazard statements

Flammable liquid and vapor.

Fatal if swallowed or in contact with skin.

Toxic if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

#### · Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

*Use explosion-proof electrical/ventilating/lighting/equipment.* 

*Use only non-sparking tools.* 

Take precautionary measures against static discharge.

Do not breathe dusts or mists.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

*If swallowed: Rinse mouth. Do NOT induce vomiting.* 

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a poison center/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Take off immediately all contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

In case of fire: Use CO2, powder or water spray to extinguish.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

#### · Classification system:

· NFPA ratings (scale 0 - 4)



Health = 4Fire = 2Reactivity = 0

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Trade name: MAE Solution (Acid Etch Mixture)

· HMIS-ratings (scale 0 - 4)

(Contd. of page 2)



- · Other hazards
- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable. · **vPvB**: Not applicable.

# 3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:			
CAS: 7697-37-2	Nitric Acid	64.3%	
CAS: 64-19-7	Acetic Acid, Glacial	19.758%	
CAS: 7664-39-3	Hydrofluoric Acid 49-51% Aqueous Solution	15.942%	

## 4 First-aid measures

- · Description of first aid measures
- · General information:

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

*In case of irregular breathing or respiratory arrest provide artificial respiration.* 

· After inhalation:

Supply fresh air or oxygen; call for doctor.

*In case of unconsciousness place patient stably in side position for transportation.* 

- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing:

Do not induce vomiting; immediately call for medical help.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

## 5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

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(Contd. of page 3)

- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

### 6 Accidental release measures

#### · Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Dilute with plenty of water.

Do not allow to enter sewers/surface or ground water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

· <i>PAC-1</i> :		
CAS: 7697-37-2	Nitric Acid	0.16 ppm
CAS: 64-19-7	Acetic Acid, Glacial	5 ppm
CAS: 7664-39-3	Hydrofluoric Acid 49-51% Aqueous Solution	1.0 ppm
· PAC-2:		
CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 64-19-7	Acetic Acid, Glacial	35 ppm
CAS: 7664-39-3	Hydrofluoric Acid 49-51% Aqueous Solution	24 ppm
· PAC-3:		
CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 64-19-7	Acetic Acid, Glacial	250 ppm
CAS: 7664-39-3	Hydrofluoric Acid 49-51% Aqueous Solution	44 ppm

### 7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

## Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.

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(Contd. of page 4)

- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

## 8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters

#### · Components with limit values that require monitoring at the workplace:

#### CAS: 7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: (4) NIC-0.025 ppm

Long-term value: (2) ppm

NIC-A4

#### CAS: 64-19-7 Acetic Acid, Glacial

PEL Long-term value: 25 mg/m³, 10 ppm

REL Short-term value: 37 mg/m³, 15 ppm

Long-term value: 25 mg/m³, 10 ppm

TLV Short-term value: 15 ppm Long-term value: 10 ppm

Long-term value. 10 ppm

# CAS: 7664-39-3 Hydrofluoric Acid 49-51% Aqueous Solution

PEL Long-term value: 1\* mg/m³, 3 ppm

as F, \*sulfuric acid

REL Long-term value: 2.5 mg/m³, 3 ppm

Ceiling limit value: 5\* mg/m³, 6\* ppm

\*15-min, as F

TLV Long-term value: 0.5 ppm

Ceiling limit value: 2 ppm

as F; Skin, BEI

### Ingredients with biological limit values:

#### CAS: 7664-39-3 Hydrofluoric Acid 49-51% Aqueous Solution

BEI 3 mg/g creatinine

LD50 Intraperitoneal: urine

Time: prior to shift

LD50: Fluorides (background, nonspecific)

10 mg/g creatinine

LD50 Intraperitoneal: urine

Time: end of shift

LD50: Fluorides (background, nonspecific)

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

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Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

### Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Not determined.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

#### · Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

#### · Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

· Body protection: Protective work clothing

## 9 Physical and chemical properties

- · Information on basic physical and chemical properties
- · General Information
- · Appearance:

· pH-value:

Form: Liquid Color: Clear Odor: Strong

· Odor threshold: Not determined.

· Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 83 °C (181.4 °F)

• Flash point:  $40 \, ^{\circ}C \, (104 \, ^{\circ}F)$ 

· Flammability (solid, gaseous): Flammable.

• *Auto igniting:* 485 °C (905 °F)

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Trade name: MAE Solution (Acid Etch Mixture)

	(Contd. of page
Decomposition temperature:	Not determined.
Ignition temperature:	Product is not selfigniting.
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapo mixtures are possible.
Explosion limits:	
Lower:	4 Vol %
Upper:	17 Vol %
Vapor pressure at 20 °C (68 °F):	40 hPa (30 mm Hg)
Density at 20 °C (68 °F):	1.33236 g/cm³ (11.11854 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible.
Partition coefficient (n-octanol/wate	e <b>r):</b> Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Organic solvents:	19.8 %
VOC content:	19.76 %
	263.3 g/l / 2.20 lb/gal
Solids content:	0.0 %
Other information	No further relevant information available.

# 10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

# 11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

I D/I C50	values th	at are re	lovant for	classification	

ATE (Acute Toxicity Estimate)			
Oral	LD50	31.4 mg/kg	
Dermal	LD50	31.2 mg/kg	

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### Inhalative LC50/4h 4.66 mg/l

- · Primary irritant effect:
- · on the skin: Strong caustic effect on skin and mucous membranes.
- · on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: Sensitization possible through skin contact.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

**Toxic** 

Corrosive

Irritant

Very toxic

Danger through skin absorption.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

### 12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

## 13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

UN-Number	
DOT, IMDG, IATA	UN2922
UN proper shipping name	
DOT	Corrosive liquids, toxic, n.o.s. (Acetic Acid, Glacial
IMDG, IATA	, Hydrofluoric Acid 49-51% Aqueous Solution, Nitric Acid) CORROSIVE LIQUID, TOXIC, N.O.S. (Acetic Acid, Glacial , Hydrofluoric Acid 49-51% Aqueous Solution, Nitric Acid)
Transport hazard class(es)	
DOT	
CORROSIVE TOXIC	
Class	6.1 Toxic substances
Label	8, 6.1
IMDG	
Class	6.1 Toxic substances
Label	8/6.1
IATA	
Class	6.1 Toxic substances
Label	8 (6.1)
Packing group	**
DOT, IMDG, IATA	II
Environmental hazards: Marine pollutant:	No
Special precautions for user	Warning: Toxic substances
Poison inhalation hazard:	Possible
Hazard identification number (Kemler code): EMS Number:	: 008 F-A,S-B
EMS Number. Segregation groups	(SGG1) Acids
Stowage Category	B

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	(Contd. of page
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 1 L
	On cargo aircraft only: 5 L
· IMDG	
Limited quantities (LQ)	IL
Excepted quantities $(\overline{EQ})$	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (ACETIC ACI
	GLACIAL
	, HYDROFLUORIC ACID 49-51% AQUEOUS SOLUTIO
	NITRIC ACID), 8 (6.1), II

# 15 Regulatory information

- · Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara				
· Section 355 (extremely hazardous substances):				
CAS: 7697-37-2 Nitric Acid				
CAS: 7664-39-3 Hydrofluoric Acid 49-51% Aqueous Solution				
· Section 313 (Specific toxic chemical listings):				
CAS: 7697-37-2 Nitric Acid				
CAS: 7664-39-3 Hydrofluoric Acid 49-51% Aqueous Solution				
· TSCA (Toxic Substances Control Act):				
Nitric Acid	ACTIVE			
Acetic Acid, Glacial ACTIV				
Hydrofluoric Acid 49-51% Aqueous Solution ACTIV				
· Hazardous Air Pollutants				
CAS: 7664-39-3 Hydrofluoric Acid 49-51% Aqueous Solution				
· Proposition 65				
· Chemicals known to cause cancer:				
None of the ingredients is listed.				

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

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#### · Carcinogenic categories

#### · EPA (Environmental Protection Agency)

None of the ingredients is listed.

#### · TLV (Threshold Limit Value)

None of the ingredients is listed.

#### · NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms









GHS02

GHS05

GHS06 GHS0

## · **Signal word** Danger

#### · Hazard-determining components of labeling:

Nitric Acid

Hydrofluoric Acid 49-51% Aqueous Solution

Acetic Acid, Glacial

#### · Hazard statements

Flammable liquid and vapor.

Fatal if swallowed or in contact with skin.

Toxic if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

### · Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

 $Use\ explosion-proof\ electrical/ventilating/lighting/equipment.$ 

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dusts or mists.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a poison center/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Take off immediately all contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

In case of fire: Use CO2, powder or water spray to extinguish.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Environment protection department.
- · Contact:

Date of Preparation / Last Revision:

· Date of preparation / last revision

Revision 1.2, 07-25-2024: Reviewed SDS for accuracy. STN/GW

Creation date for SDS 12-18-2014. STN

07/25/2024 / 1.1

· Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit BEI: Biological Exposure Limit

Flammable Liquids 3: Flammable liquids - Category 3

Acute Toxicity - Oral 2: Acute toxicity - Category 2

Acute Toxicity - Dermal 1: Acute toxicity - Category 1

Acute Toxicity - Inhalation 3: Acute toxicity - Category 3

Skin Corrosion 1A: Skin corrosion/irritation – Category 1A Eye Damage 1: Serious eye damage/eye irritation – Category 1

Sensitization - Skin 1: Skin sensitisation – Category 1

\* \* Data compared to the previous version altered.

US ·