

## SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2015/830)

### SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product name : SOLUTION ALCOOLIQUE DE CHLORURE DE FER (III) ACIDE

Product code : 17277-17278.

ALCOHOL SOLUTION OF IRON CHLORIDE 3 ACID

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

Etching reagent

#### 1.3. Details of the supplier of the safety data sheet

Registered company name : PRESI S.A.S.

Address : 11 Rue du vercors.38320.EYBENS.France.

Telephone : +33 (0)4.76.72.00.21. Fax : +33 (0)4.76.72.05.84.

presi@presi.com

www.presi.com

#### 1.4. Emergency telephone number : +33 (0)1.45.42.59.59.

Association/Organisation : INRS / ORFILA <http://www.centres-antipoison.net>.

### SECTION 2 : HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

**In compliance with EC regulation No. 1272/2008 and its amendments.**

Flammable liquid, Category 2 (Flam. Liq. 2, H225).

Serious eye damage, Category 1 (Eye Dam. 1, H318).

This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

#### 2.2. Label elements

**In compliance with EC regulation No. 1272/2008 and its amendments.**

Hazard pictograms :



GHS02



GHS05

Signal Word :

DANGER

Product identifiers :

EC 231-729-4

FER(III) CHLORURE, 6H2O

EC 231-595-7

HYDROCHLORIC ACID

Hazard statements :

H225

Highly flammable liquid and vapour.

H318

Causes serious eye damage.

Precautionary statements - Prevention :

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280

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

Precautionary statements - Response :

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P310 Immediately call a POISON CENTER/doctor/...  
 Precautionary statements - Storage :  
 P403 + P235 Store in a well-ventilated place. Keep cool.  
 Precautionary statements - Disposal :  
 P501 Dispose of contents/container to ...

**2.3. Other hazards**

The mixture does not contain substances classified as 'Substances of Very High Concern' (SVHC)  $\geq 0.1\%$  published by the European Chemicals Agency (ECHA) under article 57 of REACH: <http://echa.europa.eu/fr/candidate-list-table>

The mixture fulfils neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

**SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS**

**3.2. Mixtures**

**Composition :**

Identification	(EC) 1272/2008	Note	%
CAS: 64-17-5 EC: 200-578-6 REACH: 01-2119457610-43-0000 ETHANOL	GHS02 Dgr Flam. Liq. 2, H225	[1]	50 $\leq$ x % < 100
CAS: 10025-77-1 EC: 231-729-4 REACH: 01-2119497998-05-0000 FER(III) CHLORURE, 6H2O	GHS07, GHS05 Dgr Acute Tox. 4, H302 Eye Dam. 1, H318		2.5 $\leq$ x % < 10
EC: 231-595-7 REACH: 01-2119484862-27 HYDROCHLORIC ACID	GHS05, GHS07 Dgr Skin Corr. 1B, H314 STOT SE 3, H335	B	2.5 $\leq$ x % < 10

(Full text of H-phrases: see section 16)

**Information on ingredients :**

[1] Substance for which maximum workplace exposure limits are available.

**SECTION 4 : FIRST AID MEASURES**

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

**4.1. Description of first aid measures**

**In the event of exposure by inhalation :**

Move to fresh air

If symptoms persist, call a physician

**In the event of splashes or contact with eyes :**

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.

Regardless of the initial state, refer the patient to an ophthalmologist and show him the label.

**In the event of splashes or contact with skin :**

Wash well with water

**In the event of swallowing :**

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water and consult a doctor.

Keep the person exposed at rest. Do not force vomiting.

Seek medical attention, showing the label.

If swallowed accidentally, call a doctor to ascertain whether observation and hospital care will be necessary. Show the label.



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

No data available.

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

No data available.

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**SECTION 5 : FIREFIGHTING MEASURES**

Flammable.

Chemical powders, carbon dioxide and other extinguishing gas are suitable for small fires.

**5.1. Extinguishing media**

Keep packages near the fire cool, to prevent pressurised containers from bursting.

**Suitable methods of extinction**

In the event of a fire, use :

- sprayed water or water mist
- water with AFFF (Aqueous Film Forming Foam) additive
- halon
- foam
- multipurpose ABC powder
- BC powder
- carbon dioxide (CO<sub>2</sub>)

Prevent the effluent of fire-fighting measures from entering drains or waterways.

**Unsuitable methods of extinction**

In the event of a fire, do not use :

- water jet

**5.2. Special hazards arising from the substance or mixture**

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO<sub>2</sub>)
- hydrogen chloride (HCl)
- phosgene (CCl<sub>2</sub>O)
- chlorine (Cl<sub>2</sub>)

**5.3. Advice for firefighters**

Due to the toxicity of the gas emitted on thermal decomposition of the products, fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

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**SECTION 6 : ACCIDENTAL RELEASE MEASURES**

**6.1. Personal precautions, protective equipment and emergency procedures**

Consult the safety measures listed under headings 7 and 8.

**For non first aid worker**

Because of the organic solvents contained in the mixture, eliminate sources of ignition and ventilate the area.

Avoid any contact with the skin and eyes.

**For first aid worker**

First aid workers will be equipped with suitable personal protective equipment (See section 8).

**6.2. Environmental precautions**

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.



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**6.3. Methods and material for containment and cleaning up**

Neutralise with an alkaline decontaminant, such as an aqueous solution of sodium carbonate or similar.  
Clean preferably with a detergent, do not use solvents.

**6.4. Reference to other sections**

No data available.

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**SECTION 7 : HANDLING AND STORAGE**

Requirements relating to storage premises apply to all facilities where the mixture is handled.

**7.1. Precautions for safe handling**

Always wash hands after handling.  
Remove and wash contaminated clothing before re-using.  
Ensure that there is adequate ventilation, especially in confined areas.  
Emergency showers and eye wash stations will be required in facilities where the mixture is handled constantly.

**Fire prevention :**

Handle in well-ventilated areas.  
Vapours are heavier than air. They can spread along the ground and form mixtures that are explosive with air.  
Prevent the formation of flammable or explosive concentrations in air and avoid vapor concentrations higher than the occupational exposure limits.  
Prevent the accumulation of electrostatic charges with connections to earth.  
The mixture can become electrostatically charged : always earth during decanting operations. Wear antistatic shoes and clothing and floors should be electrically non-conductive.  
Use the mixture in premises free of naked flames or other sources of ignition and ensure that electrical equipment is suitably protected.  
Keep packages tightly closed and away from sources of heat, sparks and naked flames.  
Do not use tools which may produce sparks. Do not smoke.  
Prevent access by unauthorised personnel.

**Recommended equipment and procedures :**

For personal protection, see section 8.  
Observe precautions stated on label and also industrial safety regulations.  
Avoid eye contact with this mixture at all times.  
Packages which have been opened must be reclosed carefully and stored in an upright position.

**Prohibited equipment and procedures :**

No smoking, eating or drinking in areas where the mixture is used.

**7.2. Conditions for safe storage, including any incompatibilities**

No data available.

**Storage**

Keep the container tightly closed in a dry, well-ventilated place.  
Keep away from all sources of ignition - do not smoke.  
Keep well away from all sources of ignition, heat and direct sunlight.  
Avoid accumulation of electrostatic charges.  
The floor must be impermeable and form a collecting basin so that, in the event of an accidental spillage, the liquid cannot spread beyond this area.

**Packaging**

Always keep in packaging made of an identical material to the original.  
Suitable packaging materials :  
- Polyethylene

**7.3. Specific end use(s)**

No data available.

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**SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters**

**Occupational exposure limits :**

- ACGIH TLV (American Conference of Governmental Industrial Hygienists, Threshold Limit Values, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
64-17-5		1000 ppm		A3	

- Germany - AGW (BAuA - TRGS 900, 29/01/2018) :

CAS	VME :	VME :	Excess	Notes
64-17-5		500 ppm 960 mg/m <sup>3</sup>		2(II)

- Canada / Quebec (Regulations on occupational health and safety) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
64-17-5	1000 ppm 1880 mg/m <sup>3</sup>				

- France (INRS - ED984 :2016) :

CAS	VME-ppm :	VME-mg/m <sup>3</sup> :	VLE-ppm :	VLE-mg/m <sup>3</sup> :	Notes :	TMP No :
64-17-5	1000	1900	5000	9500	-	84

- Switzerland (SUVAPRO 2017) :

CAS	VME	VLE	Valeur plafond	Notations
64-17-5	500 ppm 960 mg/m <sup>3</sup>	1000 ppm 1920 mg/m <sup>3</sup>		SSC

- USA / NIOSH IDLH (National Institute for Occupational Safety and Health, Immediately Dangerous to Life or Health Concentrations) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
64-17-5	-	-	3300	-	-

- UK / WEL (Workplace exposure limits, EH40/2005, 2011) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
64-17-5	1000 ppm 1920 mg/m <sup>3</sup>	- ppm - mg/m <sup>3</sup>			

**Derived no effect level (DNEL) or derived minimum effect level (DMEL):**

HYDROCHLORIC ACID ...%

**Final use:**

Exposure method:  
Potential health effects:  
DNEL :

**Workers.**

Inhalation.  
Long term local effects.  
8 mg of substance/m<sup>3</sup>

Exposure method:  
Potential health effects:  
DNEL :

Inhalation.  
Short term local effects.  
15 mg of substance/m<sup>3</sup>

FER(III) CHLORURE, 6H<sub>2</sub>O (CAS: 10025-77-1)

**Final use:**

Exposure method:  
Potential health effects:  
DNEL :

**Workers.**

Dermal contact.  
Long term systemic effects.  
2.8 mg/kg body weight/day

**Final use:**

Exposure method:  
Potential health effects:  
DNEL :

**Man exposed via the environment.**

Ingestion.  
Long term systemic effects.  
0.28 mg/kg body weight/day



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Exposure method: Dermal contact.  
Potential health effects: Long term systemic effects.  
DNEL : 1.4 mg/kg body weight/day

ETHANOL (CAS: 64-17-5)

**Final use:**

Exposure method: Ingestion.  
Potential health effects: Long term systemic effects.  
DNEL : 343 mg/kg body weight/day

Exposure method: Inhalation.  
Potential health effects: Long term systemic effects.  
DNEL : 950 mg of substance/m3

Exposure method: Inhalation.  
Potential health effects: Short term local effects.  
DNEL : 1900 mg of substance/m3

**Final use:**

**Man exposed via the environment.**

Exposure method: Ingestion.  
Potential health effects: Long term systemic effects.  
DNEL : 87 mg/kg body weight/day

Exposure method: Dermal contact.  
Potential health effects: Long term systemic effects.  
DNEL : 206 mg/kg body weight/day

Exposure method: Inhalation.  
Potential health effects: Long term systemic effects.  
DNEL : 114 mg of substance/m3

Exposure method: Inhalation.  
Potential health effects: Short term local effects.  
DNEL : 950 mg of substance/m3

**Predicted no effect concentration (PNEC):**

HYDROCHLORIC ACID ...%

Environmental compartment: Fresh water.  
PNEC : 36 µg/l

Environmental compartment: Sea water.  
PNEC : 36 µg/l

Environmental compartment: Intermittent waste water.  
PNEC : 45 µg/l

Environmental compartment: Waste water treatment plant.  
PNEC : 36 µg/l

ETHANOL (CAS: 64-17-5)

Environmental compartment: Soil.  
PNEC : 0.63 mg/kg

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Environmental compartment: PNEC :	Fresh water. 0.96 mg/l
Environmental compartment: PNEC :	Sea water. 0.79 mg/l
Environmental compartment: PNEC :	Intermittent waste water. 2.75 mg/l
Environmental compartment: PNEC :	Fresh water sediment. 3.6 mg/kg
Environmental compartment: PNEC :	Marine sediment. 2.9 mg/kg
Environmental compartment: PNEC :	Waste water treatment plant. 580 mg/l
Environmental compartment: PNEC :	Salt water predators (oral). 0.72 mg/kg

## 8.2. Exposure controls

### Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

#### - Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles with protective sides accordance with standard EN166.

In the event of high danger, protect the face with a face shield.

Prescription glasses are not considered as protection.

Individuals wearing contact lenses should wear prescription glasses during work where they may be exposed to irritant vapours.

Provide eyewash stations in facilities where the product is handled constantly.

#### - Hand protection

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN374.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

Type of gloves recommended :

- Nitrile rubber (butadiene-acrylonitrile copolymer rubber (NBR))

- PVC (polyvinyl chloride)

- Butyl Rubber (Isobutylene-isoprene copolymer)

Recommended properties :

- Impervious gloves in accordance with standard EN374

#### - Body protection



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Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

**SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES**

**9.1. Information on basic physical and chemical properties**

**General information :**

Physical state : Fluid liquid.

**Important health, safety and environmental information**

pH : Not stated.  
Strongly acidic.

Boiling point/boiling range : > 35°C

Flash Point Interval : FP < 23°C

Vapour pressure (50°C) : Not relevant.

Density : < 1

Water solubility : Soluble.

Melting point/melting range : Not specified.

Self-ignition temperature : Not specified.

Decomposition point/decomposition range : Not specified.

**9.2. Other information**

No data available.

**SECTION 10 : STABILITY AND REACTIVITY**

**10.1. Reactivity**

No data available.

**10.2. Chemical stability**

This mixture is stable under the recommended handling and storage conditions in section 7.

**10.3. Possibility of hazardous reactions**

When exposed to high temperatures, the mixture can release hazardous decomposition products, such as carbon monoxide and dioxide, fumes and nitrogen oxide.

**10.4. Conditions to avoid**

Any apparatus likely to produce a flame or to have a metallic surface at high temperature (burners, electric arcs, furnaces etc.) must not be allowed on the premises.

Avoid :

- accumulation of electrostatic charges.
- heating
- heat
- flames and hot surfaces

**10.5. Incompatible materials**

No data available.

**10.6. Hazardous decomposition products**

The thermal decomposition may release/form :

- carbon monoxide (CO)
- carbon dioxide (CO<sub>2</sub>)
- hydrogen chloride (HCl)
- phosgene (CCl<sub>2</sub>O)
- chlorine (Cl<sub>2</sub>)





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**SECTION 11 : TOXICOLOGICAL INFORMATION**

**11.1. Information on toxicological effects**

May have irreversible effects on the eyes, such as tissue damage in the eye, or serious physical decay of sight, which is not fully reversible by the end of observation at 21 days.

Serious eye damage is typified by the destruction of cornea, persistent corneal opacity and iritis.

**11.1.1. Substances**

**Acute toxicity :**

FER(III) CHLORURE, 6H<sub>2</sub>O (CAS: 10025-77-1)

Oral route : LD<sub>50</sub> = 900 mg/kg  
Species : Rat

**11.1.2. Mixture**

No toxicological data available for the mixture.

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**SECTION 12 : ECOLOGICAL INFORMATION**

**12.1. Toxicity**

**12.1.2. Mixtures**

No aquatic toxicity data available for the mixture.

**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 and vPvB assessment**

No data available.

**12.6. Other adverse effects**

No data available.

**German regulations concerning the classification of hazards for water (WGK, AwSV vom 18/04/2017, KBws) :**

WGK 1 : Slightly hazardous for water.

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**SECTION 13 : DISPOSAL CONSIDERATIONS**

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

**13.1. Waste treatment methods**

Do not pour into drains or waterways.

**Waste :**

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

**Soiled packaging :**

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

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**SECTION 14 : TRANSPORT INFORMATION**

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2017 - IMDG 2016 - ICAO/IATA 2017).

**14.1. UN number**

2924

**14.2. UN proper shipping name**

UN2924=FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
(ethanol, hydrochloric acid ...%)

**14.3. Transport hazard class(es)**

- Classification :



3+8

**14.4. Packing group**

II

**14.5. Environmental hazards**

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**14.6. Special precautions for user**

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	3	FC	II	3+8	338	1 L	274	E2	2	D/E

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ
	3	8	II	1 L	F-E,S-C	274	E2

IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ
	3	8	II	352	1 L	363	5 L	A3	E2
	3	8	II	Y340	0.5 L	-	-	A3	E2

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

No data available.

**SECTION 15 : REGULATORY INFORMATION**

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**- Classification and labelling information included in section 2:**

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2018/1480 (ATP 13)

**- Container information:**

No data available.

**- Particular provisions :**

No data available.

**- German regulations concerning the classification of hazards for water (WGK, AwSV vom 18/04/2017, KBws) :**

WGK 1 : Slightly hazardous for water.

**15.2. Chemical safety assessment**

No data available.



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**SECTION 16 : OTHER INFORMATION**

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

**Wording of the phrases mentioned in section 3 :**

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

**Abbreviations :**

DNEL : Derived No-Effect Level

PNEC : Predicted No-Effect Concentration

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

GHS02 : Flame

GHS05 : Corrosion

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.