

Safety Data Sheet
According to Regulation (EC) No /2010
 Sulfuric Acid

Version 1.0

Issue date: 23/10/2017

Revision date: 23/10/2017

SDS Record Number: CSSS-TCO-010-124789

Section 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier:

Identification on the label/Trade name: Battery Acid Pack (Sulfuric Acid)
 Additional identification: Sulfuric Acid
 Identification of the product: Mixture
 Index Number: No additional information available
 REACH registration No.: No additional information available

1.2 Relevant identified uses of the substance and uses advised against:

1.2.1 Identified uses:

Battery Electrolyte

1.2.2 Uses advised against:

No additional information available

1.3 Details of the supplier of the safety data sheet:

Supplier(Only representative): -
 Supplier(Manufacturer): Piaggio & C S.p.A
 Address: Viale Rinaldo Piaggio, 25 – 56025 Pontedera – (PI) Italy
 Contact person(E-mail): centralino@piaggio.com
 Telephone: (ITALY) +39 0587 272111

1.4 Emergency telephone Number:

CHEMTREC(US, Canada) Phone: 1-800-424-9300

CHEMTREC (International) Phone: 1-703-527-3887

Available outside office hours? YES NO

Section 2 Hazards Identification

2.1 Classification of the substance/mixture:

2.1.1 Classification:

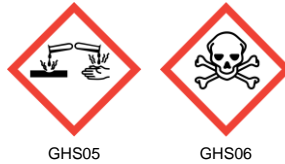
The mixture is classified as following according to REGULATION (EC) No 1272/2008:

Acute Tox. 1 (Inhalation)	Acute toxicity (inhalation) Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H314	Causes severe skin burns and eye damage
H330	Fatal if inhaled
R35	Causes severe burns
C	Corrosive

For full text of H- phrases: see section 2.2.

2.2 label elements:

Hazard Pictograms:



Signal word (CLP)	Danger
Hazard statements (CLP)	H314 - Causes severe skin burns and eye damage H330 - Fatal if inhaled
Precautionary statements (CLP)	P260 - Do not breathe dust/fume/gas/mist/vapours/spray P264 - Wash ... thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P284 - Wear respiratory protection P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

2.3 Other hazards:

No additional information available

Section 3 Composition/information on ingredients

Substance/Mixture:

Mixture

Ingredient(s):

Name	Product identifier	%	Classification according to Directive 67/548/EEC
Water	(CAS No) 7732-18-5 (EC no) 231-791-2	60-7 0	Not classified
Sulfuric acid	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) not available	30-4 0	C; R35

Name	Product identifier	Specific concentration limits
Sulfuric acid	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) not available	(5 =< C < 15) Xi;R36/38 (C >= 15) C;R35

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Water	(CAS No) 7732-18-5 (EC no) 231-791-2	60-7 0	Not classified
Sulfuric acid	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) not available	30-4 0	Skin Corr. 1A, H314
Name	Product identifier	Specific concentration limits	
Sulfuric acid	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) not available	(5 =< C < 15) Eye Irrit. 2, H319 (5 =< C < 15) Skin Irrit. 2, H315 (C >= 15) Skin Corr. 1A, H314	

Section 4 First aid measures

4.1 Description of first aid measures:

In all cases of doubt, or when symptoms persist, seek medical attention.

4.1.1 In case of inhalation:

Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Lead Compounds: Remove from exposure, gargle, wash nose and lips, consult physician.

4.1.2 In case of skin contact:

Sulfuric Acid: Flush with large amounts of water for at least 15 minutes, remove any contaminated clothing. If irritation develops seek medical attention. Lead Compounds: Wash with soap and water.

4.1.3 In case of eyes contact:

Sulfuric Acid: Flush immediately with water for 15 minutes, consult a physician. Lead Compounds: Flush immediately with water for 15 minutes, consult a physician.

4.1.4 In case of ingestion:

Sulfuric Acid: Do not induce vomiting, consult a physician immediately. Lead Compounds: Consult a physician immediately.

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

Causes severe skin burns and eye damage. May damage fertility. May damage the unborn child. May cause harm to breast-fed children.

Acute Health Hazards: Sulfuric Acid: Severe skin irritation, burns, damage to cornea may cause blindness, upper respiratory irritation. Lead Compounds: May cause abdominal pain, nausea, headaches, vomiting, loss of appetite, severe cramping, muscular aches and weakness, and difficulty sleeping. The toxic effects of lead are cumulative and slow to appear. It affects the kidneys, reproductive and central nervous systems. The symptoms of lead overexposure are listed above. Exposure to lead from a battery most often occurs during lead reclamation operations through the breathing or ingestion of lead dust or fumes.

Chronic Health Hazards: Sulfuric acid: Possible scarring of the cornea, inflammation of the nose, throat and bronchial tubes, possible erosion of tooth enamel. Lead Compounds: May cause anemia, damage to kidneys and nervous system, and damage to reproductive system in both males and females.

Medical Conditions Generally Aggravated by Exposure: Inorganic lead and its compounds can aggravate chronic forms of kidney, liver, and neurological diseases. Contact of battery electrolyte (acid) with the skin may aggravate skin diseases such as eczema and contact dermatitis. Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions.

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

Aspiration of this material may cause chemical pneumonia.

Section 5 Fire-Fighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Dry chemical, foam, CO₂.

Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture

Sealed batteries can emit hydrogen only if over charged (float voltage > 2.41 VPC).

The gas enters the air through the vent caps. To ABS: Temperatures over 300°C (572°F) may release combustible gases. To PP: Temperatures over 380°C (716°F)

- 5.3 Advice for firefighters:** may release combustible gases.
Wear positive pressure self-contained breathing apparatus. Wear fully protective suit.

Section 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

- 6.1.1 For non-emergency personnel:** Use proper personal protective equipment as indicated in Section 8. Ensure adequate ventilation. Avoid contact with eyes. Wear protective equipment. Keep unprotected persons away.
- 6.1.2 For emergency responders:** Wear positive pressure self-contained breathing apparatus if dust is generated.
Evacuate unnecessary personnel

6.2 Environmental Precautions:

Do not allow product to reach sewage system or any water course. Inform respective authorities in case of seepage into water course or sewage system. Do not allow to enter sewers/ surface or ground water.

6.3 Methods for Containment and Cleaning up:

In case the release occurs, stop flow of material: contain/absorb small spills with dry sand, earth, and vermiculite. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Spent Batteries - send to secondary lead smelter for recycling. Follow applicable federal, state and local regulations Neutralize as in preceding step. Collect neutralized material in sealed container and handle as hazardous waste as applicable.

6.4 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 information on disposal.

Section 7 Handling and storage

7.1 Precautions for safe handling:

- 7.1.1 Protective measures:** Ensure good ventilation/exhaustion at the workplace. Avoid contact with eyes. Keep ignition sources away - Do not smoke. Due to the battery's low internal resistance and high power density, high levels of short circuit current can be developed across the battery terminals. Do not rest tools or cables on the battery. Use insulated tools only. Follow all installation instructions and diagrams when installing or maintaining battery systems.
- 7.1.2 Advice on general occupational hygiene:** Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities:

- | | |
|----------------------------|--|
| Technical measures | Provide local exhaust or general room ventilation. |
| Storage conditions | Store in a dry, cool and well-ventilated place. Keep away from heat and direct sunlight. |
| Incompatible products | alkaline substances. |
| Special rules on packaging | Store in original container or corrosive resistant and/or lined container. |

7.3 Specific end use(s):

No additional information available

Section 8 Exposure Controls/Personal Protection

8.1 Control parameters:

8.1.1 Occupational exposure limits:

Sulfuric acid (7664-93-9)		
EU	IOELV TWA (mg/m ³)	0,05 mg/m ³ (taking into account potential limitations and interferences which take place in the presence of other Sulphur compounds-mist)
Austria	MAK (mg/m ³)	0,1 mg/m ³ (corresponds to 0.05 mg/m ³ Thoracic-inhalable fraction)
Austria	MAK Short time value (mg/m ³)	0,2 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	0,2 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	0,05 mg/m ³ (When choosing a suitable method for monitoring exposure should take into account potential constraints and interactions that may occur in the presence of other sulfur compounds-respirable aerosol)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,05 mg/m ³
Cyprus	OEL TWA (mg/m ³)	0,05 mg/m ³ (vapor)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³ 0,05 mg/m ³ (concentrated-mist)
Denmark	Grænseværdie (langvarig) (mg/m ³)	0,05 mg/m ³ (thoracic fraction-mist)
Estonia	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Finland	HTP-arvo (8h) (mg/m ³)	0,05 mg/m ³
Finland	HTP-arvo (15 min)	0,1 mg/m ³
France	VME (mg/m ³)	0,05 mg/m ³ (thoracic fraction)
France	VLE (mg/m ³)	3 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0,1 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Gibraltar	OEL TWA (mg/m ³)	0,05 mg/m ³ (when selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds-thoracic fraction)
Greece	OEL TWA (mg/m ³)	0,05 mg/m ³ (mist)
Hungary	AK-érték	0,05 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	0,05 ppm
Ireland	OEL (15 min ref) (ppm)	0,15 ppm (calculated)
Italy	OEL TWA (mg/m ³)	0,05 mg/m ³ (When choosing a suitable method for monitoring exposure should take into account potential constraints and interactions that may occur in the presence of other sulfur compounds, respirable fraction-thoracic fraction, mist)
Latvia	OEL TWA (mg/m ³)	0,05 mg/m ³ (choosing an appropriate exposure monitoring method, there should be taken into account the possible limitations and the impact that may result from the presence of other sulfur components-fog, which is defined as the thoracic fraction)
Lithuania	IPRV (mg/m ³)	0,05 mg/m ³ (vapor)
Lithuania	TPRV (mg/m ³)	3 mg/m ³ (fog-vapor)
Luxembourg	OEL TWA (mg/m ³)	0,05 mg/m ³
Malta	OEL TWA (mg/m ³)	0,05 mg/m ³ (mist)
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,05 mg/m ³ (defined as thoracic fraction-mist)
Poland	NDS (mg/m ³)	0,05 mg/m ³ (thoracic fraction)
Portugal	OEL TWA (mg/m ³)	0,05 mg/m ³ (thoracic fraction-mist)

Romania	OEL TWA (mg/m ³)	0,05 mg/m ³
Slovakia	NPHV (priemerná) (mg/m ³)	0,1 mg/m ³
Slovenia	OEL TWA (mg/m ³)	0,05 mg/m ³ (inhalable fraction, fog)
Spain	VLA-ED (mg/m ³)	0,05 mg/m ³ (indicative limit value; it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary or biocide compound; limitations and interferences can arise from other Sulfur compounds-mist)
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,1 mg/m ³
Sweden	kortidsvärde (KTV) (mg/m ³)	0,2 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	0,05 mg/m ³ (mist)
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m ³)	0,3 mg/m ³ (inhalable fraction)
Switzerland	VME (mg/m ³)	0,1 mg/m ³ (inhalable)
Switzerland	VLE (mg/m ³)	0,1 mg/m ³ (inhalable)
Australia	TWA (mg/m ³)	1 mg/m ³
Australia	STEL (mg/m ³)	3 mg/m ³

8.1.2 Additional exposure limits under the conditions of use: Not available.

8.1.3 DNEL/DMEL and PNEC-Values: Not available.

8.2 Exposure controls:

8.2.1 Appropriate engineering controls: Mechanical ventilation is recommended. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.2.2 Individual protection measures, such as personal protective equipment:

Eye/face protection: Chemical goggles or face shield with safety glasses. DIN EN 166

Hand protection: Wear suitable gloves tested to EN374. Use neoprene gloves

Personal protective equipment:

Skin and body protection: Wash contaminated clothing before reuse. IF ON SKIN: Wash with plenty of soap and water.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment. half-mask with filter according to EN 149.

Thermal hazards: Wear suitable protective clothing to prevent heat.

8.2.3 Environmental exposure controls: Do not allow product to reach sewage system or any water course. Inform respective authorities in case of seepage into water course or sewage system. Do not allow to enter sewers/ surface or ground water.



Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Physical state	Liquid
Appearance	Clear. liquid.
Colour	transparent.
Odour	penetrating. Sharp. pungent.
Odour threshold	No data available

Product name: Sulfuric Acid

Version #: 1.0

Issue date: 23-10-2017.

Revision date: 23-10-2017.

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pH	No data available
Relative evaporation rate (butyl acetate=1)	< 1
Melting point	No data available
Freezing point	No data available
Boiling point	95 - 95,5 °C
Flash point	Non-flammable
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapour pressure	10 mm Hg
Relative vapour density at 20 °C	> 1
Relative density	No data available
Density	1,215 - 1,35 g/m ³
Solubility	Soluble in water. Water: 100 %
Log Pow	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	No data available
Oxidising properties	No data available
Explosive limits	No data available

9.2. Other information:

Fat solubility(solvent– oil to be specified)	Not available
etc:	
Surface tension:	Not available
Dissociation constant in water(pKa):	Not available
Oxidation-reduction Potential:	Not available
Specific gravity:	Not available

Section 10 Stability and reactivity

10.1 Reactivity:	Stable under normal conditions.
10.2 Chemical stability:	Stable at normal conditions.
10.3 Possibility of hazardous reactions:	Hazardous polymerization will not occur.
10.4 Conditions to avoid:	Mechanical impact. Heat sources.
10.5 Incompatible materials:	Alkali. metals. Combustible materials. Organic materials. Oxidising agents. amines. Bases. Chlorates. iron. Nitrates. Perchlorates. Permanganates. Phosphorus. Steel. zinc. Peroxides. cyanides. nitromethane. Benzene.
10.6 Hazardous decomposition products:	Carbon oxides. Sulphur oxides. Toxic and irritating gases are released following thermal decomposition or combustion.

Section 11 Toxicological information

11.1 Information on toxicological effects:

Acute toxicity:Inhalation: Inhalation: Fatal if inhaled.

Sulfuric Acid-	
LD50 oral rat	2140 mg/kg bodyweight
LC50 inhalation rat (mg/l)	510 mg/m ³
ATE CLP (vapours)	0,050 mg/l/4h
ATE CLP (dust,mist)	0,005 mg/l/4h

Skin corrosion/Irritation: Causes severe skin burns and eye damage.

Serious eye damage/irritation: Serious eye damage, category 1, implicit

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

STOT- single exposure: Not classified

STOT-repeated exposure: Not classified

Aspiration hazard: Not classified

Section 12 Ecological information

12.1 Toxicity:

Sulfuric acid (7664-93-9)	
LC50 fish 1	82 mg/l (Exposure time:24 h - Species: Brachydanio rerio [static])

12.2 Persistence and degradability:

Sulfuric Acid-	
Persistence and degradability	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. The products of degradation are more Toxic.

12.3 Bioaccumulative potential:

Sulfuric acid (7664-93-9)	
BCF fish 1	(no bioaccumulation)

12.4 Mobility in soil: Not available.

12.5 Results of PBT&vPvB assessment: Not applicable

12.6 Other adverse effects: Not available.

Section 13 Disposal considerations

13.1 Waste treatment methods:

Regional legislation (waste)	Dispose of contents/container to comply with applicable local, national and international regulations.
Waste treatment methods	Recycling the product is recommended. Waste must be disposed of in accordance with federal,state, and local environmental control regulations.
Waste disposal recommendations	Consult the appropriate local waste disposal expert about waste disposal. Since emptied containers retain product residue, follow label warnings even after container is emptied.

Section 14 Transport informa

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	2796
UN-No. (IMDG)	2796
UN-No.(IATA)	2796
UN-No.(ADN)	2796
UN-No. (RID)	2796

14.2. UN proper shipping name

Proper Shipping Name (ADR)	SULPHURIC ACID / BATTERY FLUID, ACID
Proper Shipping Name (IMDG)	SULPHURIC ACID
Proper Shipping Name (IATA)	Sulphuric acid
Proper Shipping Name (ADN)	Not applicable
Proper Shipping Name (RID)	Not applicable
Transport document description (ADR)	UN 2796 SULPHURIC ACID / BATTERY FLUID, ACID, 8, II, (E)
Transport document description (ADR) (IMDG)	UN 2796 SULPHURIC ACID, 8, II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	8
Danger labels (ADR)	8

IMDG

Transport hazard class(es) (IMDG)	8
Danger labels (IMDG)	8

IATA

Transport hazard class(es) (IATA)	8
Hazard labels (IATA)	8

ADN

Transport hazard class(es) (ADN)	Not applicable
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RID

Transport hazard class(es) (RID)	8
Danger labels (RID)	8



14.4. Packing group

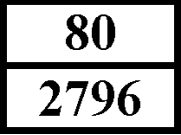
Packing group (ADR)	II
Packing group (IMDG)	II
Packing group (IATA)	II
Packing group (ADN)	Not applicable
Packing group (RID)	Not applicable

14.5. Environmental hazards

Dangerous for the environment	No
Marine pollutant	No
Other information	No supplementary information available

14.6. Special precautions for user

14.6.1. Overland transport

Classification code (ADR)	C1
Limited quantities (ADR)	1I
Excepted quantities (ADR)	E2
Packing instructions (ADR)	P001, IBC02
Mixed packing provisions (ADR)	MP15
Portable tank and bulk container instructions (ADR)	T8
Portable tank and bulk container special provisions (ADR)	TP2
Tank code (ADR)	L4BN
Vehicle for tank carriage	AT
Transport category (ADR)	2
Hazard identification number (Kemler No.)	80
Orange plates	

Tunnel restriction code (ADR)	E
EAC code	2R

14.6.2. Transport by sea

Limited quantities (IMDG)	1 L
Excepted quantities (IMDG)	E2
Packing instructions (IMDG)	P001
IBC packing instructions (IMDG)	IBC02
IBC special provisions (IMDG)	B20
Tank instructions (IMDG)	T8
Tank special provisions (IMDG)	TP2
EmS-No. (Fire)	F-A
EmS-No. (Spillage)	S-B
Stowage category (IMDG)	B
Properties and observations (IMDG)	Colourless liquid, mixture not exceeding 1.405 relative density. Highly
MFAG-No	157

14.6.3. Air transport

PCA Excepted quantities (IATA)	E2
PCA Limited quantities (IATA)	Y840
PCA limited quantity max net quantity (IATA)	0.5L
PCA packing instructions (IATA)	851
PCA max net quantity (IATA)	1L
CAO packing instructions (IATA)	855
CAO max net quantity (IATA)	30L
ERG code (IATA)	8L

14.6.4. Inland waterway transport

Not subject to ADN No

14.6.5. Rail transport

Carriage prohibited (RID) No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Section 15 Regulation information

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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
 Sulfuric Acid- is not on the REACH Candidate List
 Contains no substance on the REACH candidate list
 Contains no REACH Annex XIV substances

15.1.2. National regulations

Germany

Water hazard class (WGK) 3 - severe hazard to waters

15.2. Chemical safety assessment

CSA has not been established

Section 16 Other information

16.1 Indication of changes:

Version 1.0 Amended by (EU) 2015/830

16.2 Training instructions:

Not applicable.

16.3 Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

16.4 Notice to reader:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.