Sulfuric Acid

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Date of issue: 25/03/2015 Revision date: 25/03/2015 : SDS – MC Acid Pack Version: 1.0

Doc Ref: QAPTEC0018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : Battery Acid Pack (Sulfuric Acid)

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Battery Electrolyte

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Yuasa Battery Sales (UK) Ltd

Unit 13, Hunts Rise, South Marston Industrial Park

SN4TG Swindon

T +44-8708-500259 - F +44-8708-500317

email: matt.jordan@yuasaeurope.com

1.4. Emergency telephone number

Emergency number : +44(0)1793833562 (09:00 – 17:00 Monday to Friday)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 1 (Inhalation) H330

Skin Corr. 1A H314

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

C; Repr.Cat.1; R35

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS05

GHS06

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

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Directive 67/548/EEC
Water	(CAS No) 7732-18-5 (EC no) 231-791-2	60	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	40	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	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	40	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

Full text of R- and H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If a battery ruptures, move to fresh air in case of accidental inhalation of mist. If breathing is irregular or stopped, administer artificial respiration. If breathing is difficult, give oxygen. Seek medical attention immediately.

First-aid measures after skin contact : Rinse immediately with plenty of water for 15 minutes. Remove contaminated clothing, including shoes, after flushing has begun. If a battery ruptures, do not rub or scratchexposed skin. Immediately call a POISON CENTER or doctor/physician.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If battery ruptures, do not rub or scratch exposed eye.

First-aid measures after ingestion : If solution of a battery chemicals have been swallowed and the person is conscious, give one glass of water. Do NOT induce vomiting. Vomiting may occur spontaneously. Never give anything by mouth to an unconscious person. Get immediate medical attention.

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

Symptoms/injuries after inhalation : If a battery ruptures, may be harmful or fatal if inhaled in a confined area. May cause severe irritation and burns of the nose, throat and respiratory tract.

Symptoms/injuries after skin contact : Direct contact with internal components of a battery can be severely irritating to the skin and may result in redness, swelling, burns and severe skin damage. Skin contact may aggravate an existing dermatitis condition. Skin contact may aggravate dermatitis.

Symptoms/injuries after eye contact : If a battery ruptures, direct contact with the liquid or exposure to vapours or mists may cause tearing, redness, swelling, corneal damage and irreversible eye damage. May cause severe burns.

Symptoms/injuries after ingestion : Severe irritation or burns to the mouth, throat, oesophagus, and stomach. May be fatal if swallowed.

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

Aspiration of this material may cause chemical pneumonia.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire. If a battery ruptures, use dry chemical, soda ash, lime, sand or carbon dioxide.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Sulfuric acid will not burn but can start fires with organic material, nitrates, carbides, chlorates, and metal powders.

Explosion hazard	:	Reacts violently with water. It can react explosively with organic materials. . Reacts with most metals to produce hydrogen gas, which can form an explosive mixture with air. Hydrogen may accumulate in containers, avoid ignition sources. Addition of water to acid causes heat and potentially explosive mixtures. Spill over into sewers may generate hydrogen gas or sulfides.
Hazardous decomposition products in case of fire	:	Sulfur oxides.

5.3. Advice for firefighters

Protective equipment for firefighters	:	Use self-contained breathing apparatus and chemically protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Avoid contact with spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective equipment.

6.1.1. For non-emergency personnel

Protective equipment	:	Wear suitable protective clothing, gloves and eye/face protection.
Emergency procedures	:	Evacuate area.

6.1.2. For emergency responders

Protective equipment	:	Wear suitable protective clothing, gloves and eye/face protection.
Emergency procedures	:	Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	:	For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal.
Methods for cleaning up	:	Small spills:collect all released material in a plastic lined metal container. . Take up liquid spill into absorbent material or Neutralize with sodium bicarbonate. Large spills:contain liquid using absorbent materila, by digging trenches. Take up liquid spill into inert absorbent material, e.g.: sand/earth. Dispose in a safe manner in accordance with local/national regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	:	Protect from physical damage.
Precautions for safe handling	:	Avoid all eye and skin contact and do not breathe vapour and mist. Since emptied containers retain product residue, follow label warnings even after container is emptied. Non-static creating clothing and conductive shoes should be worn.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash contaminated clothing prior to re-use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

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

Sulfuric acid (7664-93-9)		
EU	IOELV TWA (mg/m³)	0,05 mg/m³ (taking into account potential limitations and interferences which take place in the presence of other Sulphur compounds-mist)
Austria	MAK (mg/m³)	0,1 mg/m³ (corresponds to 0.05 mg/m3 Thoracic-inhalable fraction)
Austria	MAK Short time value (mg/m³)	0,2 mg/m³ (inhalable fraction)
Belgium	Limit value (mg/m³)	0,2 mg/m³

Sulfuric acid (7664-93-9)		
Bulgaria	OEL TWA (mg/m³)	0,05 mg/m³ (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/m³)	0,05 mg/m³
Cyprus	OEL TWA (mg/m³)	0,05 mg/m³ (vapor)
Czech Republic	Expoziční limity (PEL) (mg/m³)	1 mg/m³ 0,05 mg/m³ (concentrated-mist)
Denmark	Grænseværdie (langvarig) (mg/m³)	0,05 mg/m³ (thoracic fraction-mist)
Estonia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Finland	HTP-arvo (8h) (mg/m³)	0,05 mg/m³
Finland	HTP-arvo (15 min)	0,1 mg/m³
France	VME (mg/m³)	0,05 mg/m³ (thoracic fraction)
France	VLE (mg/m³)	3 mg/m³
Germany	TRGS 900 Occupational exposure limit value (mg/m³)	0,1 mg/m³ (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/m³)	0,05 mg/m³ (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/m³)	0,05 mg/m³ (mist)
Hungary	AK-érték	0,05 mg/m³
Ireland	OEL (8 hours ref) (ppm)	0,05 ppm
Ireland	OEL (15 min ref) (ppm)	0,15 ppm (calculated)
Italy	OEL TWA (mg/m³)	0,05 mg/m³ (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/m³)	0,05 mg/m³ (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/m³)	0,05 mg/m³ (vapor)
Lithuania	TPRV (mg/m³)	3 mg/m³ (fog-vapor)
Luxembourg	OEL TWA (mg/m³)	0,05 mg/m³
Malta	OEL TWA (mg/m³)	0,05 mg/m³ (mist)
Netherlands	Grenswaarde TGG 8H (mg/m³)	0,05 mg/m³ (defined as thoracic fraction-mist)
Poland	NDS (mg/m³)	0,05 mg/m³ (thoracic fraction)
Portugal	OEL TWA (mg/m³)	0,05 mg/m³ (thoracic fraction-mist)
Romania	OEL TWA (mg/m³)	0,05 mg/m³
Slovakia	NPHV (priemerná) (mg/m³)	0,1 mg/m³
Slovenia	OEL TWA (mg/m³)	0,05 mg/m³ (inhalable fraction, fog)
Spain	VLA-ED (mg/m³)	0,05 mg/m³ (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/m³)	0,1 mg/m³
Sweden	kortidsvärde (KTV) (mg/m³)	0,2 mg/m³
United Kingdom	WEL TWA (mg/m³)	0,05 mg/m³ (mist)
Norway	Gjennomsnittsverdier (AN) (mg/m³)	0,1 mg/m³ (inhalable fraction)
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m3)	0,3 mg/m³ (inhalable fraction)
Switzerland	VME (mg/m³)	0,1 mg/m³ (inhalable)
Switzerland	VLE (mg/m³)	0,1 mg/m³ (inhalable)

Sulfuric acid (7664-93-9)		
Australia	TWA (mg/m³)	1 mg/m³
Australia	STEL (mg/m³)	3 mg/m³
Canada (Quebec)	VECD (mg/m³)	3 mg/m³
Canada (Quebec)	VEMP (mg/m³)	1 mg/m³
USA - ACGIH	ACGIH TWA (mg/m³)	0,2 mg/m³ (thoracic fraction)
USA - IDLH	US IDLH (mg/m³)	15 mg/m³
USA - NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³
USA - OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³

8.2. Exposure controls

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.

Personal protective equipment : Safety glasses. Gloves. Insufficient ventilation: wear respiratory protection. Protective clothing.

Materials for protective clothing : Plastic apron or overall. neoprene/natural rubber

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

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

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.

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

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/m³

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

No additional information 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: Fatal if inhaled.

Sulfuric Acid-	
LD50 oral rat	2140 mg/kg bodyweight
LC50 inhalation rat (mg/l)	510 mg/m³
ATE CLP (vapours)	0,050 mg/l/4h
ATE CLP (dust,mist)	0,005 mg/l/4h

Sulfuric acid (7664-93-9)	
LD50 oral rat	2140 mg/kg
LC50 inhalation rat (mg/l)	510 mg/m³ (Exposure time: 2 h)

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

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

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (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

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information 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 information

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

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) : 1l

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 corrosive to most metals. Causes burns to skin, eyes and mucous membranes.

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: Regulatory 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

Full text of R-, H- and EUH-phrases:

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

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product