FLUORSID

Material Safety Data Sheet In accordance with Regulation (EC) n. 1907/2006

SULPHURIC ACID 98-99%
Compilation date: 2015/06/01
Replaces Revision 03 of 2019/07/26
Revision: 04
Version: 00
Revision Date: 2019/12/02

SULPHURIC ACID 98÷99%

SECTION 1. Identification of the substance and of the company

1.1 Product identifier

Chemical name	:	SULPHURIC ACID 98÷99%
Commercial name	:	SULPHURIC ACID 98÷99%
C.A.S. Nr.	:	7664 - 93 - 9
E.C. Nr.	:	231-639-5
Index Nr.	:	016-020-00-8
Chemical formula	:	$H_2 SO_4$
Molecular weight	:	98.07 g/mol
Registration number	:	01-2119458838-20-0099

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

Use in manufacture of inorganic and organic chemicals included fertilizers, processing aid , catalyst, dehydrating agent, pH regulator, for extracting and processing of minerals, process of surface treatments, purification and etching, electrolytic processes, flue gas scrubbing, manufacture, maintenance and recycling of batteries, laboratory chemicals, industrial cleaning, mixing, preparation and repackaging.

Uses advised against
Not known

1.3 Details of the supplier of the safety data sheet

Company name	:	Fluorsid S.p.A.
Address	:	2[a] Strada Macchiareddu 09032 ASSEMINI (CA) - Italy
Phone	:	+39 070 246321
Fax	:	+39 070 2463235
E-mail	:	msds@fluorsid.com
Website	:	www.fluorsid.com

1.4 Emergency telephone number

Poison information centres number Italy:

- Ospedale Niguarda Cà Grande (Milano) : +39 02 66101029 (24h)
- Policlinico A. Gemelli (Roma) : +39 06 3054343 (24h)
- Ospedale pediatrico Bambino Gesù (Roma) : +39 06 68593726 (24h)
- Az. Ospedaliera A. Cardarelli (Napoli) : +39 081 5453333 (24h)
- Azienda Ospedaliera Papa Giovanni XXIII (Bergamo) : 800883300 (24h)
- Centro Nazionale di Informazione Tossicologica (Pavia) : +39 0382 24444 (24h)
- Az. Ospedaliera Univ. Foggia (Foggia) : 800183459 (24h)
- Policlinico Umberto I (Roma) : +39 0649978000 (24h)
- Az. Ospedaliera Careggi (Firenze) : +39 0557947819 (24h)

N° telefonico della società : +39 070 246321 (24h)

Foreign countries: Contact the closest Poisons Information Centre.

SECTION 2. Hazards identification

2.1 Classification of the substance

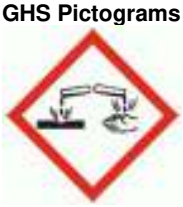
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]:

Corrosion – Skin corr. 1A - H314

2.2 Label elements

Labelling according Regulation (EC) N° 1272/2008 [CLP]

GHS Pictograms



GHS05

Signal word: Danger (Dgr)

Hazard statements

H314 Causes severe skin burns and eye damage

Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection/face protection
P310 Immediately call a POISON CENTER or doctor/physician.
P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

Highly reactive with water. Never add water to product.

SECTION 3. Composition/ Information on ingredients

3.1 Substances

Name	Concentration (C)	Classification Regulation CE/1272/2008	
Sulphuric Acid Cas No 7664-93-9 CE No 231-639-5 Index No 016-020-00-8 Registration number: 01-2119458838-20-0099	98-99%	Skin corr. 1A	H314

SECTION 4. First Aid measures

4.1 Description of first aid measures

General Recommendations:
Personal protective equipment (gloves, etc.) required for rescuers of victims, see section 8.
In case of product splashing into eyes and face, treat eyes first.
Handle patient and all contaminated clothing with sulphuric acid resistant gloves.
Install showers and eyewash stations near all storage, loading, unloading and substance movement stations.

4.1.1 Routes of exposure

Inhalation
Immediately call a physician. Immediately bring the victim far from the contaminated area and keep him warm and in complete relax. If inhalation has been violent, keep the patient under medical attention. In case of breath difficulties, employ oxygen therapy and let the patient to the medical attention. If breathing has stopped, perform artificial respiration, may be dangerous to perform mouth-to-mouth (use ball Ambu). If it is unconscious, place the victim in recovery position, and get immediately medical attention.

Skin contact
Immediately take out contaminated clothes and treat the affected part with a solution of Diphoterine. If Diphoterine solution is not immediately available in the accident place, wash the skin with abundant water until complete removal of any trace of acid or until the availability of Diphoterine solution. Continue treating with Diphoterine also during the transfer of the injured person to the hospital.
Chemical burns must be treated immediately by a doctor.

Eyes contact
Treat immediately the affected part with Diphoterine ocular washing. If Diphoterine solution is not immediately available in the accident place, wash with abundant water or physiological solution, keeping eyelids wide open, until complete removal of any trace of acid or until the availability of Diphoterine solution. Continue treating with Diphoterine also during the transfer of the injured person to the hospital.
Immediately consult a doctor or an ophthalmologist emergency room. Chemical burns must be treated immediately by a doctor.

Swallowing
In case of accidental swallowing seek medical attention. Waiting for physician arrival, rinse your mouth with water, do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

The Material is extremely destructive to mucous membranes and upper respiratory tract, eyes and skin. Symptoms include coughing, shortness of breath, headache, nausea. After swallowing: severe pain (risk of perforation!), Nausea, vomiting and diarrhea. After a latency period of several weeks possibly pyloric stenosis.

4.3 Indication of any immediate medical attention and special treatment needed

Consult a physician immediately in all cases of exposure.

SECTION 5. Firefighting measures

5.1 Extinguishing media

The product is not flammable.

Suitable extinguishing media:
Use as extinguishing foam, dry powder or CO2.
Cool tank/container of sulphuric acid with water spray from secure location, warning not to enter water inside the vessels. Put in a safe place eventual dangerous vessels.

Unsuitable extinguishing media:
Do not use water; contact with the acid generates sketches.

5.2 Special hazards arising from the substance

Fire and explosion hazards
It reacts with metals to produce hydrogen, with consequent explosion risk.
Decomposition products may include sulfur oxides.

5.3 Advice for fire-fighters

Special protective equipment during fire
In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment. For specifications, see section 8.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For all internal and / or external personnel
No action shall be taken involving any personal risk or without suitable training. Keep away all non-emergency personnel. Do not touch or walk through spilled material. Avoid breathing vapors or mists. Provide adequate ventilation (natural or by mechanical means). Wear appropriate personal protective equipment (section 8). These safety indications are valid both for workers and for emergency personnel.

For non-emergency personnel
The following indications are addressed to the personnel, adequately informed and trained, operating in the plant units in which the substance is normally used. This indications are intended to ensure, when this is possible without risks, the preliminary safety operations before leaving the area and waiting for the intervention of the emergency personnel.
Stop leak if you can do it without risk.
Remove non-emergency personnel from the area involved in the spill.
If possible, operate above wind.
Provide adequate ventilation (natural or forced) of the (closed) rooms affected by the spillage.
All necessary precautions must be taken to ensure that the spillage does not come into contact with water to reduce the risk of violent reactions.

For emergency personnel
The following indications are addressed to expert personnel such as personnel belonging to the emergency team, specially trained. This indications are added to the previous indications referred to all personnel and / or non-emergency personnel. To the same personnel are referred the indications concerning environmental precautions and containment and reclamation methods.
Wear all the PPE provided based on the training received.
Operate according to the emergency procedures described in the Emergency Management Plan edited by the Employer.

6.2 Environmental precautions

Stop the leak, if this can be done without danger. Do not allow product flush into surface water or sanitary sewer system.

6.3 Methods and material for containment and cleaning up

In case of accidental spillage of SULPHURIC ACID solution, bestrew absorbent material (sand, soil, calcium sulphate or other commercially available absorbents) and neutralize with lime, calcium carbonate or sodium carbonate, then remove with the normal mechanical devices.

6.4 Reference to other sections

For more information on protective measures refer to sections 7, 8 and 13

SECTION 7. Handling and Storage

7.1 Precautions for safe handling

Wear appropriate personal protective equipment. If during normal use the material presents a respiratory risk, use adequate ventilation or wear suitable respiratory equipment. Store in the original container or an approved alternative one made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers with residue of product can be dangerous. Handle avoiding contact with water.
Do not eat, drink or smoke in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid contact with eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest.

7.2 Conditions for safe storage, including any incompatibilities

Buildings and places in which there is risk of exposure to the product must be separated and insulated from the other buildings and from work areas.
Provide adequate ventilation in the storage area in order to dilute any leakage of vapors from the containers.
Store the product in a well ventilated, dry and cool area.
Protect from direct sunlight.
The places in which the substance is stored must be properly indicated and the product must be separated from other incompatible substances (i.e.: water, sodium carbonate, hydrogen peroxide, hydroxides, potassium permanganate, acrylic nitrile, nitrobenzene, acetaldehyde, sulphures).
Keep container tightly closed and sealed until its use. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Do not store the product in unlabelled containers. Use appropriate containment to avoid environmental contamination.
Exclude every source of ignition of flammable substances.

7.3 Specific end uses:

See exposure scenario

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Limits of professional exposure
The following limits apply to sulphuric acid content in aerosol / mist.

SCOEL
Occupational Exposure Limit (OEL), 8 h TWA: 0.05 mg/m3

Local effects in the long term - inhalation
DNEL: 0,05 mg/m3

Acute local effects - inhalation
DNEL: 0,1 mg/m3

PNECfresh water: 0,0025 mg/L
PNECmarine water: 0,00025 mg/L
NECsediment: 2*10-3 mg/kg wwt
PNECsediment marine water: 2*10-3 mg/kg wwt
NOECmicro-organism: 26000 mg/L
PNECstp: 8,8 mg/L

8.2 Exposure controls

8.2.1 Appropriate engineering controls

If user operations generate gases / vapors / mists, the workplace must be adequately ventilated.
Work places must be properly aired. When possible sources of local air inlet and efficient systems of air exchange must be installed. If these systems are not enough to keep concentrations of vapours under exposure limits, use gas proof masks and complete face protection or aqualung. Use acid proof work clothes.
Observe the normal personal health care.

8.2.2 Individual protection measures, such as personal protective equipment

Respiratory protection
For brief exposures at low concentrations, use full face masks with filter for acid vapours (Type E, EN 141). For lasting exposure, use autonomous breathing devices.

Hand protection
- Protective latex of natural rubber gloves (Type A, EN ISO-347) (Permeation time >30 min)
- Protective neoprene gloves (Type A, EN ISO-347) (Permeation time >30 min)

Eye protection
Safety glasses with full side shields or goggles are recommended.

Skin protection
If the result of risk assessment is low, a complete barrier for the permeation of liquids is not necessary and when the personnel are able to take timely adequate actions if their clothes are contaminated (for example potential exposure to small amounts of light sprays, liquid aerosols or small volume of accidental spills), wear acid proof clothes (type 6) according to EN13034.

In case of processes where the risk of potential contact with the substance is not negligible, or situations where the operator can come into direct contact with the chemical (for example in case of lines and equipment opening, reclamation and entry in equipment) wear completely waterproof coverall with headgear compliant with standard EN14605 (type 3) (suggested class 6, permeation time > 480 min) and PVC / nitrile antacid boots.

8.2.3 Environmental exposure controls

Take all the necessary technical precautions to prevent the spread of the product in the environment. Do not disperse the product in the environment. The wastewater must be properly neutralized. Residues of air emissions treatment must be sent to the internal water treatment system, recycled in the process or sent to a treatment system outside.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid, Colourless
Odour	Odourless
Odour threshold	n.a.
pH	< 1 (10 g/l) a 20 °C
melting point/freezing point	3 – -1,1 °C
initial boiling point and boiling range	310 – 335 °C
Flash point	Not flammable
Evaporation rate	n.a.
Flammability	n.a.
Upper/lower flammability or explosive limits	n.a.
Vapour pressure	< 0,001 hPa a 20°C
Relative density	1,83 g/cm3 a 20°C
Solubility	Miscible in water
Partition coefficient: n-octanol/water	n.a.
Auto-ignition temperature	non flammable

Decomposition temperature	n.a.
Viscosity	22,5 mPa · s a 20 °C
Explosive properties	not explosive, the contact with metal release hydrogen
Oxidising proprieties	not oxidising
Dissociation constant	1,92

9.2 Other information

Not available

SECTION 10. Stability and reactivity

10.1 Reactivity

There are no particular risks of reaction with other substances - with the exception of water and alkalis - under normal conditions of use.
Highly reactive substance, extremely acid and with oxidising properties at high concentrations.
Hygroscopic, it absorbs moisture from the air.
The substance does not present additional hazards related to reactivity compared to the hazard reported in the following subtitles

10.2 Chemical stability

The product is stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions

Do not occur in normal conditions of storage and use.
Releases of hydrogen in reaction with metals.
Reacts violently with alkalis releasing heat.
The dilution of the substance in water is strongly exothermic and fast. If you pour water on the concentrated acid the reaction is violent and accompanied by liquid projections.

10.4 Conditions to avoid

Heating.
Highly reactive with water and alkali.

10.5 Incompatible materials

Attacks many metals producing hydrogen, an extremely flammable gas, which can form explosive mixtures with air. Alkali.

10.6 Hazardous decomposition products

None in normal conditions of storage and use.
Burning, it releases sulphur oxides.
In case of reaction with metals, it releases hydrogen.
If heated it releases gases and vapors potentially harmful to health.

11. Toxicological Information

11.1 Information on toxicological effects

a) **Acute toxicity**

Inhalation

Sulphuric Acid vapours irritate superior breathing organs, depending on time and intensity of the exposure.
Lasting exposures at high concentrations can determine chronicle damages

Acute inhalation toxicity (LC_{50})	375 mg/m3 (Rat)
Acute inhalation toxicity (LC_{50})	0.85 mg/m3 (Mouse)
Acute inhalation toxicity (LC_{50})	0.6 mg/m3 (Mouse)
Long term toxicity (NOAEC)	0.3 mg/m3
Toxicity for reproduction (NOAEC)	19.3 mg/m3 (Rabbit/Mouse)

Ingestion

Sulphuric acid swallowing determines, as all liquid and solid corrosive agents, an immediate direct harmful action against tissues.

Oral High Toxicity (LD_{50})	2140 mg/kg (Rat)

b) **Corrosion/dermal irritation**

Sulphuric acid is listed in CLP Regulation as Skin Corr 1A H314 (Causes severe skin burns and severe eye damage).

Skin contact
Skin contact determines skin burnings (rapidly destroying the whole thickness of skin tissues), ulcerations, necrosis and serious damages also everlasting.
Work clothes must be acid-proof.

c) Severe eye damage / eye irritation

Sulphuric acid is listed in CLP Regulation as Skin Corr 1A H314 (Causes severe skin burns and severe eye damage).

Eyes contact
Eyes contact cause burnings, ulcerations, necrosis and serious damages, until loss of sight.
Always use watertight glasses.

d) Respiratory and dermal sensitisation

No classification is proposed for skin sensitisation or respiratory sensitisation based on theoretical considerations and in the absence of any findings in exposed humans following occupational use over a long period of time.

e) Mutagenicity

No classification is proposed for genotoxicity. An absence of mutagenicity has been demonstrated in Ames tests; positive results in studies with mammalian cells are attributable to the artefactual effects of low pH. No in vivo studies are available, however the absence of systemic exposure to the substance and the lack of genotoxicity of the hydrogen and sulphate ions means that no genotoxicity is predicted and testing is not required.

f) Carcinogenicity

The available animal data do not support the classification of sulphuric acid for carcinogenicity. Weak evidence of a local carcinogenic effect on the forestomach/oesophagus was seen following lifetime oral gavage of rats with sulphuric acid at the MTD. Similarly, some evidence of a local carcinogenic effect on the respiratory tract was seen in rats treated with sulphuric acid by intratracheal instillation over a lifetime. A synergistic effect was seen in animals instilled with sulphuric acid. In all cases, findings were associated with chronic irritation at the site of contact. Although a number of epidemiological studies report a link between exposure to sulphuric acid mists and laryngeal cancer, the individual studies are imprecise and often do not take sufficient account of confounding factors. A number of studies (using various animal species) have not demonstrated any carcinogenic effect of inhalation exposure to sulphuric acid mists.

g) Toxicity for reproduction

No classification is proposed for reproductive or developmental toxicity. The existing data and the absence of systemic exposure do not indicate that classification is required.

h) Specific target organ toxicity (STOT) - single exposure

In presence of mists / aerosols strong irritation for respiratory tract.

i) Specific target organ toxicity (STOT) - multiple exposure

Classification for severe effects after repeated or prolonged exposure is not proposed, while the studies performed with sulphuric acid clearly show the potential for toxicity following repeated/prolonged exposure to low concentrations, there is clearly no potential for systemic toxicity and the effects seen in these studies are essentially a consequence of the local corrosivity/irritancy.

j) Aspiration Hazard

Data not available

SECTION 12. Ecological information

12.1 Toxicity

Short-term toxicity to fish
LC50 (96h): 16 mg/L

Long-term toxicity to fish
NOEC: 0.025 mg/L

Acute toxicity to aquatic invertebrates
EC_{50} (48h):> 100 mg/l

Long-term toxicity to aquatic invertebrates
NOEC: 0.15 mg/l

Toxicity to acquatic-organism
EC50 (72h): > 100 mg/L

Toxicity to acquatic micro-organism
NOEC (37 d): ca. 26g/L

Dangerous for aquatic life, also at low concentrations, because it lowers water pH values.
Sulphuric acid determine a rapid destroying of animal tissues..
Sulphuric acid and its solutions have corrosive actions against organic tissues in general.
Use according to the good working practice, avoiding the dispersion of the product in the environment

12.2 Persistence and degradability

Not persistent.
Abiotic degradation, the product is hydrolyzed.
Biotioc degradation, not applicable to inorganic compounds.

12.3 Bioaccumulative potential

There is no evidence to support the effects of bioaccumulation.

12.4 Mobility in soil

During land transportation, eventual spillage of sulphuric acid can be neutralized by components of the soil having basic behaviour (i.e. carbonates).

12.5 Results of PBT and vPvB assessment

The substance does not meet the criteria for persistence, bioaccumulation and toxicity.

12.6 Other adverse effects

There are not other side effects.

SECTION 13. Disposal considerations

13.1 Waste treatment methods

Waste deriving from its use and empty packages have to be disposed according to current regulations (directive 2008/98 / EC, regulation 1357/2014). Do not discharge into the sewage system. During handling use particular care and dress PPE as indicated at points 8.
The waste containers must be chosen based on their chemical and physical characteristics and according to the storage conditions in the waste depot as well as in relation to transporting them to the disposal or recovery plant.
Waste treatment methods, including suitable methods for treating the waste of the substance or mixture and any contaminated packaging (eg incineration, recycling, landfilling) will be defined by the producer or waste holder in accordance with the authorizations of the destination facilities.
The physical / chemical properties that can affect the waste treatment options are to be defined in relation to the destination plant by chemical - physical analysis of the waste.

SECTION 14. Transport information

14.1 UN Number:

1830

14.2 UN proper shipping name:

SULPHURIC ACID with more than 51% acid

14.3 Transport hazard class(es):

ADR/RID/ADN: 8
Codice IMDG: 8
IATA/ICAO: 8

14.4 Packaging group:

II

14.5 Environmental hazards:

ADR/RID/ADN – No
IMDG - Marine pollutant: No

14.6 Special precautions for user:

None

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

In case of bulk transport comply to Annex II of MARPOL 73/78 and the IBC code where applicable.

SECTION 15. Regulatory information

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

Labelling under regulations 1272/2008 (EC) and subsequent amendments;

Regulation	Cas	Substance
428/2009 ex CE 1334/2000 Annex.1	-	-
273/04 Tab.1 Cat.1	-	-
273/04 Tab.1 Cat.2	-	-
273/04 Tab.1 Cat.3	7664-93-9	Sulphuric Acid
1907/2006 Annex XIV	-	-
Reg.(EC)N. 111/2005 ann.1 Cat.1	**-**	**-**
Reg.(EC)N. 111/2005 ann.1 Cat.2	**-**	**-**
Reg.(EC)N. 111/2005 ann.1 Cat.3	**7664-93-9**	**Acido solforico**

1907/2006 (Substance SVHC)	-	-
552/2009 (amending Annex XVII of EC Reg. 1907/2006)	-	-
276/2010 (amending Annex XVII of EC Reg. CE 1907/2006)	-	-
Dir. 96/82/CE e Dir 105/2003/CE Annex 1 part 1	-	-
Dir. 96/82/CE e Dir. 105/2003/CE Annex 1 part 2	-	-

15.2 Chemical Safety Assessment:

For this substance a chemical safety assessment has been carried out.

SECTION 16. Other information

Revision

The present revision of MSDS amends:
- ✓ section 1.4
- ✓ section 8.2
- ✓ section 11.1

This MSDS has been completely revised in accordance with regulations N. 1907/2006/EC, 1272/2008/EC and (EU) 2015/830.

Information and training
For this substance there are no specific training courses indicated by European or national regulations.
Workers involved in sampling, transferring of the product to the tank and handling must be trained in the use and handling of the substance according to the internal procedures as well as the use of protective equipment - able to cope with the worst accident scenario - identified in the risk assessment document in order to minimize exposure and risks.
The information and basic training courses established by the Community legislation on the protection of health and safety in the workplace must be organized by the Employer, according to the task and the risks related to each workers in compliance with directives 98/24 / CE and 2004/37/CE.

Main bybliography

1. IUCLID (International Uniform Chemical Information Database) Sulphuric Acid.
2. CSR Sulphuric acid

Key to abbreviations and acronyms

ACIGH: American Conference of Governmental Industrial Hygienists
ADN: Accord européen relative au transport international des marchandises dangereuses par voies de navigation intérieures
ADR: Accord européen relative au transport international des marchandises dangereuses par route
CL 50: Lethal Concentration 50
CLP: Classification, Labelling and Packaging
CSR: Chemical Safety Report
DL 50: Lethal Dose 50
DNEL: Derived no effect level
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization

IMDG: International Maritime Dangerous Goods code
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no effect concentration
NOEC: No observed effect concentration
RID: Règlement concernent le transport International ferroviaire des marchandises Dangereuses
STEL: short term exposure limit
SCOEL: Scientific Committee on Occupational Exposure Limit Values
TWA: Time Weighted Average
EU: European Union
vPvB: Very persistent very bioaccumulative

Additional information:

Here below are reported the use descriptors identified in sections 1.2 and 7.3.

Exposure Scenario	Sector of Use (SoU)	Process category (PROC)	Product Category (PC)	Environmental Release Category (ERC)
ES1 - Production of sulphuric acid	NA	1,2,3,4, 8a, 8b, 9	NA	1
ES2 - Use of sulphuric acid as an intermediate in manufacture of inorganic and organic chemicals incl. fertilizers	3, 4, 6b, 8, 9, 14	1,2,3,4, 8a, 8b, 9	19	6a
ES3 -Use of sulphuric acid as a processing aid, catalyst, dehydrating agent, pH regulator	3, 4, 5, 6b, 8, 9, 11, 23 NACE code : E 36-37	1,2,3,4, 8a, 8b, 9, 13	20	6b
ES4 - Use of sulphuric acid for extractions and processing of minerals, ores	3, 2a,14	2, 3, 4	20,40	6b, 4
ES5 - Use of sulphuric acid in the process of surface treatments, purification and etching	3, 2a, 14, 15, 16	1, 2, 3, 4, 8a, 8b, 9, 13	14,15	6b
ES6 - Use of sulphuric acid in electrolytic processes	3,14, 15,17	1,2, 8b, 9,13	14, 20	6b, 5
ES7 - Use of sulphuric acid in gas purification, scrubbing, flue gas scrubbing	3, 8 NACE code : C20.1.1 : manufacturing of industrial gases	1, 2, 8b	20	7
ES8 - Use of sulphuric acid in production of sulphuric acid contained batteries	3 or 0 - NACE Code C27.2 (Manufacture of batteries and accumulators)	2,3,4,9	0 - UCN Code E10100 (Electrolytes)	2, 5
ES9 - Use of sulphuric acid in maintenance of sulphuric acid contained batteries	22	19	0 - UCN Code E10100 (Electrolytes)	8b, 9b
ES10 - Use of sulphuric acid in recycling of sulphuric acid contained batteries	3	2,4,5, 8a	0 - UCN Code E10100 (Electrolytes)	1
ES11 - Use of sulphuric acid contained batteries	21	PROC 19 (as worst	AC 3	9b

Exposure Scenario	Sector of Use (SoU)	Process category (PROC)	Product Category (PC)	Environmental Release Category (ERC)
		case though consumer use)		
ES12 - Use of sulphuric acid as laboratory chemicals	22	15	21	8a, 8b
ES13 - Use of sulphuric acid in industrial cleaning	3	2,5,8a, 8b, 9,10,13	35	8a,8b
ES14 - mixing, preparation and repackaging of sulphuric acid	3, 10	1, 3, 5, 8a, 8b, 9		2

Informative Note

The product must not be used for different applications for which it is sold, without having obtained previous written instructions. The manufacturer does not assume responsibility for improper or different use than those provided in the exposure scenarios.

Information supplied in this “Material Safety Data Sheet” is based on the best available knowledge and our experience, and it is not exhaustive. It is applied on the product exactly as it is, in case of mixture or compound make sure that no new danger can rise.

The present “Material Safety Data Sheet” does not exempt in any case people who handle the product to respect the current law and regulation related to the product, hygiene and security on work place.

The information contained in this form are a description of product characteristics for safety purpose, should not be considered as guarantee of the properties of the product itself.

Annex

Exposure scenario.