

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

- **Version number 1.5**
- **1.1. Product identifier**
- **Trade name Battery acid 1,23 (Sulphuric acid 31.4 %)**
- **Article number: 100105**
- **1.2. Relevant determined uses of the substance or mixture; and uses advised against:**
- **Use of the substance or mixture** *Electrolyte for lead accumulators*
- **Sector of Use**
  - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites*
  - SU21 Consumer uses: Private households / general public / consumers*
  - SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)*
- **Product category**
  - PC12 Fertilisers*
  - PC14 Metal surface treatment products*
  - PC15 Non-metal-surface treatment products*
  - PC19 Intermediate*
  - PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents*
  - PC21 Laboratory chemicals*
  - PC23 Leather treatment products*
  - PC25 Metal working fluids*
  - PC29 Pharmaceuticals*
  - PC32 Polymer preparations and compounds*
  - PC34 Textile dyes, and impregnating products*
  - PC35 Washing and cleaning products (including solvent based products)*
  - PC37 Water treatment chemicals*
  - PC39 Cosmetics, personal care products*
  - PC40 Extraction agents*
  - PC0 Other*
- **Process category**
  - PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.*
  - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions*
  - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition*
  - PROC4 Chemical production where opportunity for exposure arises*
  - PROC5 Mixing or blending in batch processes*
  - PROC7 Industrial spraying*
  - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities*
  - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities*
  - PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)*
  - PROC10 Roller application or brushing*
  - PROC11 Non industrial spraying*
  - PROC13 Treatment of articles by dipping and pouring*
  - PROC15 Use as laboratory reagent*
  - PROC19 Manual activities involving hand contact*
  - PROC26 Handling of solid inorganic substances at ambient temperature*
- **Environmental release category**
  - ERC1 Manufacture of the substance*
  - ERC2 Formulation into mixture*
  - ERC3 Formulation into solid matrix*
  - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)*
  - ERC5 Use at industrial site leading to inclusion into/onto article*
  - ERC6a Use of intermediate*
  - ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)*

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- ERC7 Use of functional fluid at industrial site
- ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
- ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
- ERC9a Widespread use of functional fluid (indoor)
- ERC9b Widespread use of functional fluid (outdoor)
- **Article category AC3** Electrical batteries and accumulators

· **1.3. Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Chemische Fabrik Wocklum Gebr. Hertin GmbH & Co. KG  
D-58802 Balve, Glärbach 2, Germany  
Phone: +49 (0)2375 / 925-0  
Telefax: +49 (0)2375 / 925-100  
E-Mail: [sdb@wocklum.de](mailto:sdb@wocklum.de)

· **Informing department:** Product Safety Department

· **1.4. Emergency telephone number:**

Emergency Call:

Poison Control Center Mainz - 24 hour emergency service - Tel: +49 (0) 6131/19240

**SECTION 2: Hazards identification**

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
- Met. Corr.1 H290 May be corrosive to metals.
- Skin Corr. 1A H314 Causes severe skin burns and eye damage.
- Eye Dam. 1 H318 Causes serious eye damage.

· **2.2. Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS05

· **Signal word** Danger

· **Hazard-determining components of labelling:**

sulphuric acid

· **Hazard statements**

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

· **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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.

P310 Immediately call a POISON CENTER/doctor.

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

### SECTION 3: Composition/information on ingredients

#### · 3.2. Chemical characterisation: Mixtures

##### · **Dangerous components:**

CAS: 7664-93-9	sulphuric acid	☠ Met. Corr.1, H290; Skin Corr. 1A, H314	25-50%
EINECS: 231-639-5			
Index number: 016-020-00-8			
Reg.nr.: 01-2119458838-20			

### SECTION 4: First aid measures

- **4.1. Description of first aid measures**
- **General information**  
Personal protection for the First Aider.  
Instantly remove any clothing soiled by the product.  
Remove breathing apparatus only after soiled clothing has been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.  
Never give anything by mouth to an unconscious person or a person with cramps.  
Move out of dangerous area.  
If unconscious but breathing recovery position.  
Cardiac arrest immediate cardiopulmonary resuscitation (CPR) Initiate.
- **After inhalation**  
Supply fresh air or oxygen; call for doctor.  
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**  
Instantly wash with water and soap and rinse thoroughly.  
Cover wound with a sterile dressing.  
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
- **After eye contact**  
Remove contact lenses, if present and easy to do. Rinse opened eye for several (at least 10) minutes under running water. Then consult doctor.
- **After swallowing** Drink copious amounts of water and provide fresh air. Instantly call for doctor.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed** Irritation and corrosivity
- **4.3. Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### SECTION 5: Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents** Product is not flammable.
- **For safety reasons unsuitable extinguishing agents** Water.
- **5.2. Special hazards arising from the substance or mixture** Sulfur oxides (SOx)

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- **5.3. Advice for firefighters**
- **Protective equipment:**  
Wear suitable protective clothing.  
Wear self contained breathing apparatus.
- **Additional information**  
Fight fire in early stages if safe to do so. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. When extinguishing with water pay attention to caustic burns. Do not let enter contaminated extinguishing water into the soil, groundwater or surface waters.

**SECTION 6: Accidental release measures**

- **6.1. Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (see section 8).  
Keep unprotected persons away.  
Avoid breathing fume/ gas/ mist/ vapours/ aerosols.  
Avoid contact with skin and eyes.
- **6.2. Environmental precautions:**  
Do not allow product to reach sewage system or water bodies.  
Prevent further leakage or spillage if safe to do so.
- **6.3. Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).  
Send for recovery or disposal in suitable containers.  
Dispose of contaminated material as waste according to item 13.
- **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**

- **Handling**
- **7.1. Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Keep container dry and tightly closed.
- **Information about protection against explosions and fires:** Usual measures for fire prevention.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:**  
Keep container tightly closed in a cool, well-ventilated place.  
Store only in the original container.
- **Information about storage in one common storage facility:**  
Keep away from: Alkali, metals, organic substances.
- **Further information about storage conditions:** No.
- **7.3. Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

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· **8.1. Control parameters**

· **Components with critical values that require monitoring at the workplace:**

**7664-93-9 sulphuric acid**

WEL Long-term value: 0.05\* mg/m<sup>3</sup>  
\*mist: defined as thoracic fraction

· **DNELs**

**7664-93-9 sulphuric acid**

Inhalative	DNEL Workers (local, short-term)	0.1 mg/m <sup>3</sup> (/)
	DNEL Workers (local, long-term)	0.05 mg/m <sup>3</sup> (/)

· **PNECs**

**7664-93-9 sulphuric acid**

PNEC aqua (fresh water)	0.0025 mg/l (/)
PNEC aqua (marine water)	0.25 mg/l (/)
PMEC STP	8.8 mg/l (/)
PNEC sediment (fresh water)	0.002 mg/kg bw (/)
PNEC sediment (marine water)	0.002 mg/kg bw (/)

· **8.2. Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Wash hands during breaks and at the end of the work.

Do not eat, drink or smoke while working.

Instantly remove any soiled and impregnated garments.

Avoid contact with the eyes and skin.

Do not inhale gases / fumes / aerosols.

· **Protection of hands:**

Use protective gloves. The glove material has to be sufficiently impermeable and resistant to the substance.

Check for leaks before use. Gloves in use have to be pre-cleaned before taking them off, then stored well ventilated. Note skin protection.

· **Material of gloves**

(Penetration time  $\geq$  8 hours)

chloroprene rubber - CR (0,5 mm)

nitrile rubber - NBR (0,35 mm)

butyl rubber - BR (0,5 mm)

polyvinyl chloride - PVC (0,5 mm)

fluorcarbon rubber (0,4 mm)

· **Penetration time of glove material**

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

· **Eye protection:** Tightly sealed safety glasses (DIN EN 166)

· **Body protection:**

Acid resistant protective clothing

Protective clothing should be selected in their place, depending on concentration and quantity of the

hazardous substances. The chemical resistance of protective clothing should be clarified with their suppliers.

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### SECTION 9: Physical and chemical properties

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

· **General Information**

· **Appearance:**

· <b>Form:</b>	Fluid
· <b>Colour:</b>	Colourless
· <b>Smell:</b>	Odourless
· <b>Odour threshold:</b>	Not determined.

· **pH-value at 20°C:** < 1

· **Change in condition**

· <b>Melting point/freezing point:</b>	-40°C
· <b>Initial boiling point and boiling range:</b>	105°C

· **Flash point:** Not applicable.

· **Inflammability (solid, gaseous)** Product is not inflammable.

· **Ignition temperature:** Not determined.

· **Decomposition temperature:** Not determined.

· **Self-inflammability:** Product is not selfigniting.

· **Explosive properties:** Product is not explosive.

· **Critical values for explosion:**

· <b>Lower:</b>	Not applicable
· <b>Upper:</b>	Not applicable
· <b>Oxidising properties</b>	not classified as oxidising

· **Steam pressure:** Not determined.

· **Density at 20°C** 1,23g/cm<sup>3</sup>

· **Settled apparent density** Not determined.

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

· **Water:** Fully miscible

· **Partition coefficient: n-octanol/water:** Not determined.

· **Viscosity:**

· **dynamic:** Not determined.

· **9.2. Other information** No further relevant information available.

### SECTION 10: Stability and reactivity

· **10.1. Reactivity** The substance is stable under normal conditions of use.

· **10.2. Chemical stability**

· **Conditions to be avoided:** No decomposition if intended stored and handled.

· **10.3. Possibility of hazardous reactions**

Exothermic reaction with water and alkalis.

Reacts with metals forming hydrogen

· **10.4. Conditions to avoid** No further information, sh. Item 7.

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- **10.5. Incompatible materials:** Alkali (lye).
- **10.6. Hazardous decomposition products:** None known.

**SECTION 11: Toxicological information**

- **11.1. Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC50 values that are relevant for classification:**

**7664-93-9 sulphuric acid**

Oral	LD50.	2,140 mg/kg (rat)
Inhalative	LC50/4h	0.375 mg/l (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation**  
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**  
Causes serious eye damage.
- **Sensitisation:** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

**SECTION 12: Ecological information**

- **12.1. Toxicity**

- **Aquatic toxicity:**

**7664-93-9 sulphuric acid**

IC50 (72h)	>100 mg/l (Alge ( <i>Senedesmus capricornutum</i> ))
EC50 (48h)	>100 mg/l ( <i>Daphnia magna</i> (großer Wasserfloh))
LC50 (96h)	16-28 mg/l ( <i>Lepomis macrochirus</i> (Bl. Sonnenbarsch))

- **12.2. Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** Not relevant for inorganic substances.
- **12.4. Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6. Other adverse effects** No further relevant information available.

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**SECTION 13: Disposal considerations**

- **13.1. Waste treatment methods**
- **Recommendation** Must be specially treated under adherence to official regulations.
- **Waste disposal key number:**  
The waste code according to the Waste Catalogue Ordinance (AVV) must be determined by the waste producer, it depends on the type of use/ type of waste generation and may be different for a particular product.


· **European waste catalogue**

16 06 06\* | separately collected electrolyte from batteries and accumulators

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

- **14.1. UN-Number**  
· **ADR, IMDG, IATA** UN2796
- **14.2. UN proper shipping name**  
· **ADR** 2796 SULPHURIC ACID  
· **IMDG, IATA** SULPHURIC ACID
- **14.3. Transport hazard class(es)**  
· **ADR, IMDG, IATA**  
  



  - **Class** 8 Corrosive substances.
  - **Label** 8
- **14.4. Packing group**  
· **ADR, IMDG, IATA** II
- **14.5. Environmental hazards:** Not applicable.  
· **Marine pollutant:** no
- **14.6. Special precautions for user** Not applicable.  
· **Kemler Number:** 80  
· **EMS Number:** F-A,S-B  
· **Segregation groups** Acids  
· **Stowage Category** B
- **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.
- **Transport/Additional information:**  
-----  
· **ADR**  
· **Limited quantities (LQ)** 1L

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· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>Transport category</b>	2
· <b>Tunnel restriction code</b>	E
<hr/>	
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	1L
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>UN "Model Regulation":</b>	UN 2796 SULPHURIC ACID, 8, II

**SECTION 15: Regulatory information**

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **National regulations**
- **Water hazard class:** Water hazard class 1 (L): Slightly hazardous to water.
- **15.2. Chemical safety assessment:**  
A chemical safety assessment has been carried out for:  
sulphuric acid  
A Chemical Safety Assessment has been carried out.

**SECTION 16: Other information**

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**  
H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.
- **Department issuing data specification sheet:** Environment protection department.
- **Abbreviations and acronyms:**  
RTECS - Registry of Toxic Effects of Chemical Substances  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
DNEL: Derived No-Effect Level (REACH)  
PNEC: Predicted No-Effect Concentration (REACH)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Met. Corr. I: Corrosive to metals – Category 1  
Skin Corr. 1A: Skin corrosion/irritation – Category 1A

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*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*

· **Sources** This information is based on information from suppliers.

· \* **Data compared to the previous version altered.** Safety editorially amended

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### Annex: Exposure scenario 1

- **Short title of the exposure scenario** Use for the manufacture of lead-acid batteries (industrial)
- **Sector of Use SU3** Industrial uses: Uses of substances as such or in preparations at industrial sites
- **Product category PC0** Other
- **Process category**
  - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
  - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
  - PROC4 Chemical production where opportunity for exposure arises
  - PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
- **Environmental release category**
  - ERC2 Formulation into mixture
  - ERC5 Use at industrial site leading to inclusion into/onto article
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**
- **Duration and frequency**  
8hrs (full working shift).  
5 workdays/week.
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the substance.
- **Physical state**  
Fluid  
Vapor Pressure: <0.1 hPa (20 ° C)
- **Concentration of the substance in the mixture** Raw material.
- **Used amount per time or activity** 2 500 tons per year
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**  
Due to the properties of the substance, the process should be carried out as close as possible.
- **Other operational conditions affecting worker exposure**  
Avoid contact with eyes.  
Avoid contact with the skin.  
Due to the properties of the substance, the process should be carried out as close as possible.  
Process is completely enclosed. (PROC02)  
Indoors with good natural ventilation
- **Other operational conditions affecting consumer exposure** Keep out of the reach of children.
- **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
Only trained and authorized personnel should handle the matter.  
The process for substance use must be well documented and closely monitored.
- **Technical protective measures** Ensure that suitable extractors are available on processing machines
- **Personal protective measures**  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the skin.  
Avoid contact with the eyes.  
Tightly sealed safety glasses (DIN EN 166)  
Protective work clothing.  
Detailed measures on hand protection according to Safety Data Sheet, section 8.

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· **Measures for consumer protection**

Ensure adequate labelling.  
Keep locked up and out of the reach of children.

· **Environmental protection measures**

The entire contaminated wastewater must be neutralized before discharge into surface waters or sewage treatment plant.

For exhaust gas purification should be used such as air scrubbers or filters.

The soil should be opaque and fluid resistant.

· **Water**

Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.

Size of the wastewater treatment plant (m<sup>3</sup> / day): 2 000

Sludge treatment: incineration or landfill

· **Disposal measures** Disposal must be made according to official regulations.

· **Disposal procedures**

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

· **Waste type** Partially emptied and uncleaned packaging

· **Exposure estimation**

man

ECETOC TRA (tier 1) and Advanced REACH Tool (Tier 2)

The calculated figures are below the individual load DNELs (RCR <1).

· **Environment**

EUSES (v2.1, tier 2) and measured data

The predicted exposure concentrations for air, for the aquatic and the terrestrial environment are below the derived PNEC values, leading to RCRs of <1.

· **Consumer** Not relevant for this Exposure Scenario.

· **Guidance for downstream users**

environment:

Among the conditions listed above, the process is considered safe. Other CONDITIONS should be taken only as and when appropriate measurements and calculations show that the RCR is <1.

Health:

Among the conditions listed above, the process is considered safe. Other conditions should be taken only as and when appropriate measurements or

Calculations show that the RCR is <1

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### Annex: Exposure scenario 2

- **Short title of the exposure scenario** Maintenance of lead-acid batteries (Professionals)
- **Sector of Use**  
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Product category** PC0 Other
- **Process category** PROC19 Manual activities involving hand contact
- **Environmental release category**  
ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)  
ERC9b Widespread use of functional fluid (outdoor)
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**
- **Duration and frequency**  
8hrs (full working shift).  
5 workdays/week.
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the substance.
- **Physical state**  
Fluid  
Vapor Pressure: <0.1 hPa (20 ° C)
- **Concentration of the substance in the mixture**  
The substance is minor component.  
or in the product: 25-50%
- **Used amount per time or activity** 2 500 tons per year
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**  
Due to the properties of the substance, the process should be carried out as close as possible.
- **Other operational conditions affecting worker exposure**  
Avoid contact with eyes.  
Avoid contact with the skin.  
Due to the properties of the substance, the process should be carried out as close as possible.  
Keep windows open during application to ensure natural ventilation.
- **Other operational conditions affecting consumer exposure** Keep out of the reach of children.
- **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
Only trained and authorized personnel should handle the matter.  
The process for substance use must be well documented and closely monitored.
- **Technical protective measures** Ensure that suitable extractors are available on processing machines
- **Personal protective measures**  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the skin.  
Avoid contact with the eyes.  
Tightly sealed safety glasses (DIN EN 166)  
Protective work clothing.  
Detailed measures on hand protection according to Safety Data Sheet, section 8.
- **Measures for consumer protection**  
Ensure adequate labelling.  
Keep locked up and out of the reach of children.
- **Environmental protection measures**  
The entire contaminated wastewater must be neutralized before discharge into surface waters or sewage treatment plant.

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*For exhaust gas purification should be used such as air scrubbers or filters.*

*The soil should be opaque and fluid resistant.*

· **Water**

*Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.*

*Size of the wastewater treatment plant (m<sup>3</sup> / day): 2 000*

*Sludge treatment: incineration or landfill*

· **Disposal measures** *Disposal must be made according to official regulations.*

· **Disposal procedures**

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

· **Waste type** *Partially emptied and uncleaned packaging*

· **Exposure estimation**

*man*

*ECETOC TRA (tier 1) and Advanced REACH Tool (Tier 2)*

*The calculated figures are below the individual load DNELs (RCR <1).*

· **Environment**

*EUSES (v2.1, tier 2) and measured data*

*The predicted exposure concentrations for air, for the aquatic and the terrestrial environment are below the derived PNEC values, leading to RCRs of <1.*

· **Consumer** *Not relevant for this Exposure Scenario.*

· **Guidance for downstream users**

*environment:*

*Among the conditions listed above, the process is considered safe. Other CONDITIONS should be taken only as and when appropriate measurements and calculations show that the RCR is <1.*

*Health:*

*Among the conditions listed above, the process is considered safe. Other conditions should be taken only as and when appropriate measurements or*

*Calculations show that the RCR is <1*

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### Annex: Exposure scenario 3

- **Short title of the exposure scenario** *Recycling of lead-acid batteries (industrial)*
- **Sector of Use** *SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites*
- **Product category** *PC0 Other*
- **Process category**
  - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions*
  - PROC4 Chemical production where opportunity for exposure arises*
  - PROC5 Mixing or blending in batch processes*
  - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities*
- **Environmental release category** *ERC1 Manufacture of the substance*
- **Description of the activities / processes covered in the Exposure Scenario**  
*See section 1 of the annex to the Safety Data Sheet.*
- **Conditions of use**
- **Duration and frequency**  
*8hrs (full working shift).*  
*5 workdays/week.*
- **Physical parameters**  
*The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the substance.*
- **Physical state**  
*Fluid*  
*Vapor Pressure: <0.1 hPa (20 ° C)*
- **Concentration of the substance in the mixture**  
*The substance is minor component.*  
*or in the product: 25-50%*
- **Used amount per time or activity** *2 500 tons per year*
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**  
*Due to the properties of the substance, the process should be carried out as close as possible.*
- **Other operational conditions affecting worker exposure**  
*Avoid contact with eyes.*  
*Avoid contact with the skin.*  
*Due to the properties of the substance, the process should be carried out as close as possible.*  
*Enter closed rooms only if ventilation is adequate.*
- **Other operational conditions affecting consumer exposure** *Keep out of the reach of children.*
- **Other operational conditions affecting consumer exposure during the use of the product** *Not applicable.*
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
*Only trained and authorized personnel should handle the matter.*  
*The process for substance use must be well documented and closely monitored.*
- **Technical protective measures** *Ensure that suitable extractors are available on processing machines*
- **Personal protective measures**  
*Do not inhale gases / fumes / aerosols.*  
*Avoid contact with the skin.*  
*Avoid contact with the eyes.*  
*Tightly sealed safety glasses (DIN EN 166)*  
*Detailed measures on hand protection according to Safety Data Sheet, section 8.*  
*Protective work clothing.*
- **Measures for consumer protection**  
*Ensure adequate labelling.*  
*Keep locked up and out of the reach of children.*

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· **Environmental protection measures**

*The entire contaminated wastewater must be neutralized before discharge into surface waters or sewage treatment plant.*

*For exhaust gas purification should be used such as air scrubbers or filters.*

*The soil should be opaque and fluid resistant.*

· **Water**

*Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.*

*Size of the wastewater treatment plant (m<sup>3</sup> / day): 2 000*

*Sludge treatment: incineration or landfill*

· **Disposal measures** *Disposal must be made according to official regulations.*

· **Disposal procedures**

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

· **Waste type** *Partially emptied and uncleaned packaging*

· **Exposure estimation**

*man*

*ECETOC TRA (tier 1) and Advanced REACH Tool (Tier 2)*

*The calculated figures are below the individual load DNELs (RCR <1).*

· **Environment**

*EUSES (v2.1, tier 2) and measured data*

*The predicted exposure concentrations for air, for the aquatic and the terrestrial environment are below the derived PNEC values, leading to RCRs of <1.*

· **Consumer** *Not relevant for this Exposure Scenario.*

· **Guidance for downstream users**

*environment:*

*Among the conditions listed above, the process is considered safe. Other CONDITIONS should be taken only as and when appropriate measurements and calculations show that the RCR is <1.*

*Health:*

*Among the conditions listed above, the process is considered safe. Other conditions should be taken only as and when appropriate measurements or*

*Calculations show that the RCR is <1*

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**Trade name Battery acid 1,23 (Sulphuric acid 31.4 %)**

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### Annex: Exposure scenario 4

- **Short title of the exposure scenario** Use of lead-acid batteries (consumers)
- **Sector of Use** SU21 Consumer uses: Private households / general public / consumers
- **Environmental release category** ERC9b Widespread use of functional fluid (outdoor)
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**
- **Duration and frequency** 4 hrs (half working shift).
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the substance.
- **Physical state**  
Fluid  
Vapor Pressure: <0.1 hPa (20 ° C)
- **Used amount per time or activity** 2500 tons per year
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**  
Due to the properties of the substance, the process should be carried out as close as possible.
- **Other operational conditions affecting worker exposure**  
Avoid contact with eyes.  
Avoid contact with the skin.  
Indoors with good natural ventilation  
Do not get in eyes, on the skin and get to the clothes.  
Batteries should only be opened in a well-ventilated place.  
Batteries should not be opened unnecessarily.  
Batteries should be on a solid surface to prevent leakage.
- **Other operational conditions affecting consumer exposure** Keep out of the reach of children.
- **Other operational conditions affecting consumer exposure during the use of the product**  
Wear suitable overalls, to avoid contact with skin.  
Acid-resistant gloves must be worn.  
To protect against splash goggles.
- **Risk management measures**
- **Worker protection**
- **Personal protective measures**  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the skin.  
Avoid contact with the eyes.
- **Measures for consumer protection**  
Ensure adequate labelling.  
Keep locked up and out of the reach of children.
- **Environmental protection measures**
- **Water**  
Size of the wastewater treatment plant (m<sup>3</sup> / day): 2 000  
Sludge treatment: incineration or landfill
- **Disposal measures** Disposal must be made according to official regulations.
- **Disposal procedures**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Waste type** Partially emptied and uncleaned packaging
- **Exposure estimation**  
man  
ECETOC TRA (tier 1) and Advanced REACH Tool (Tier 2)  
The calculated figures are below the individual load DNELs (RCR <1).

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· **Environment**

*EUSES (v2.1, tier 2) and measured data*

*The predicted exposure concentrations for air, for the aquatic and the terrestrial environment are below the derived PNEC values, leading to RCRs of <1.*

· **Consumer** *Not relevant for this Exposure Scenario.*

· **Guidance for downstream users**

*environment:*

*Among the conditions listed above, the process is considered safe. Other CONDITIONS should be taken only as and when appropriate measurements and calculations show that the RCR is <1.*

*Health:*

*Among the conditions listed above, the process is considered safe. Other conditions should be taken only as and when appropriate measurements or*

*Calculations show that the RCR is <1*