

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

1.1. Product identifier

Product form : Article
Name : lead-acid accumulators (Lead-acid batteries)

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

1.2.1. Relevant identified uses

Intended for general public
Main use category : Professional use
Use of the substance/mixture : Electrical batteries and accumulators

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Hefra
Van Weerden Poelmanweg 28
3088 EB Rotterdam - The Netherlands
T +31(0)88 4009000
info@hefra.nl - <http://www.hefra.nl>

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Remark
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Centre Hospitalier Universitaire de Constantine	Avonley Road SE14 5ER London	0870 243 2241	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Not classified

Adverse physicochemical, human health and environmental effects

No hazards in case of an intact battery and using according the instructions. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

2.2. Label elements

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

Security closing plug for children : Not applicable
Tactile warning : Not applicable

2.3. Other hazards

Other hazards not contributing to the classification : hazards in case of damaged / ruptured battery.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Lead and Lead alloys	(CAS No) 7439-92-1 (EC no) 231-100-4	~ 32	Not classified
Active mass (battery lead paste)	(CAS No) 7439-92-1 (EC no) 231-100-4	~ 32	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Repr. 1A, H360Df STOT RE 2, H373 Aquatic Chronic 3, H412
sulphuric acid (Note B)	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8	~ 29	Skin Corr. 1A, H314
Plastic Container		~ 7	Not classified

Specific concentration limits:

Name	Product identifier	Specific concentration limits
sulphuric acid	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8	(5 =<C < 15) Eye Irrit. 2, H319 (5 =<C < 15) Skin Irrit. 2, H315 (C >= 15) Skin Corr. 1A, H314

Note B : Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: "nitric acid ... %".

In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a ght/weight basis.

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	: Remove contaminated clothes. Wash skin with plenty of water. If skin irritation persists, take medical advice.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

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

Symptoms/injuries	: Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/injuries after inhalation	: Inhalation of material from a sealed battery is not an expected exposure route. Vapors or mists from a ruptured battery may cause respiratory irritation.
Symptoms/injuries after skin contact	: Contact between the battery and skin will not cause any harm. Skin contact with positive and negative terminals of high voltages may cause burns to the skin. Skin contact with a ruptured or shorted battery can cause chemical burns or irritation upon contact with the skin.
Symptoms/injuries after eye contact	: Contact between the battery and eye will not cause any harm. Eye contact with the contents of a ruptured battery can cause severe irritation to the eye.
Symptoms/injuries after ingestion	: Swallowing of material from a sealed battery is not an expected exposure route. Swallowing mists from a ruptured battery may cause respiratory irritation, chemical burns of the mouth and gastrointestinal tract irritation.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Non flammable.
Explosion hazard	: Explosion risk in case of fire.
Hazardous decomposition products in case of fire	: Carbon oxides (CO, CO ₂). Lithium Gases.

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5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : If the battery material is released, remove personnel from the area until fumes dissipate. Ventilate the area to remove the hazardous gases. Leave the area and allow the batteries to cool. Avoid skin and eye contact or inhalation of vapors.

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection. For further information refer to section 8 : "Exposure-controls/personal protection".
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Mechanically recover the product.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 8 : "Exposure-controls/personal protection". Concerning disposal elimination after cleaning, see item 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful. Concerning personal protective equipment to use, see item 8. Provide good ventilation in process area to prevent formation of vapour.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in tightly closed, properly ventilated containers away from heat, sparks, open flame. Keep container tightly closed and dry. Store in dry, cool, well-ventilated area.
- Heat and ignition sources : Keep away from heat and direct sunlight.

7.3. Specific end use(s)

Electrical batteries and accumulators.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Lead and Lead alloys (7439-92-1)		
EU	IOELV TWA (mg/m ³)	0,15 mg/m ³
EU	Notes	inhalable aerosol
EU	European BEI	70 µg/100ml (Medium: blood - Time: no restriction - Parameter: Lead (binding biological limit value) 0,075 mg/m ³ (Medium: air - Time: 40 hours per week - Parameter: Lead (TWA medical surveillance threshold in air measured as a time weighted average over 40 hours per week) 40 µg/100ml (Medium: blood - Time: no restriction - Parameter: Lead (medical surveillance threshold measured in individual workers)
United Kingdom	WEL TWA (mg/m ³)	0,15 mg/m ³
United Kingdom	WEL STEL (mg/m ³)	0,45 mg/m ³ (calculated)
sulphuric acid (7664-93-9)		
EU	Local name	Sulphuric acid (mist)
EU	IOELV TWA (mg/m ³)	0,05 mg/m ³
United Kingdom	Local name	Sulphuric acid
United Kingdom	WEL TWA (mg/m ³)	0,05 mg/m ³ (mist)
United Kingdom	Remark (WEL)	The mist is defined as the thoracic fraction

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8.2. Exposure controls

Appropriate engineering controls	: hazards in case of damaged / ruptured battery.
Personal protective equipment	: Gloves. Safety glasses.
Hand protection	: Nitrile-rubber protective gloves. Permeation time: minimum >480min long term exposure: material / thickness [mm] 0.11 mm
Eye protection	: Safety glasses
Skin and body protection	: Wear suitable protective clothing
Respiratory protection	: No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation



Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: batteries and accumulators.
Colour	: Not available.
Odour	: Odourless.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: 338 °C
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
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

Diluted sulphuric acid 30 - 38 %

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: clear.
Colour	: Colourless.
Odour	: Odourless.
Odour threshold	: No data available
pH	: 0,3
Relative evaporation rate (butylacetate=1)	: No data available

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Melting point	: -50 - -35 °C
Freezing point	: -35 - -60 °C
Boiling point	: 108 - 144 °C
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 14,6 mbar
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1,2 - 1,3 g/m ³
Solubility	: Miscible with water.
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: < 5 mPa.s
Explosive properties	: Product is not explosive.
Oxidising properties	: No data available
Explosive limits	: No data available

Lead and Lead alloys

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Grey.
Odour	: Odourless.
Odour threshold	: No data available
pH	: 7 - 8
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 327 °C
Freezing point	: No data available
Boiling point	: 1740 °C
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 1,33 hPa (at 973 °C)
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 11,35 g/cm ³
Solubility	: Water: 0,15 mg/l
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Product is not explosive.
Oxidising properties	: No data available
Explosive limits	: No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known.

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10.4. Conditions to avoid

Extremely high or low temperatures. Keep out of direct sunlight. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂). Explosion risks of vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

sulphuric acid (7664-93-9)	
LD50 oral rat	2140 mg/kg
LD50 oral	2140 mg/kg bodyweight
LC50 inhalation rat (mg/l)	510 mg/m ³
LC50 inhalation rat (Dust/Mist - mg/l/4h)	375 mg/l/4h

Skin corrosion/irritation : The product is not considered to be irritating to the skin
Serious eye damage/irritation : The product is not considered to be irritating to the eyes
Respiratory or skin sensitisation : Not specifically applicable
Germ cell mutagenicity : No mutagenic effect
Carcinogenicity : No carcinogenic effect
Reproductive toxicity : No indications of human reproductive toxicity exist
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

Lead and Lead alloys (7439-92-1)	
LC50 fishes 1	0,44 mg/l
LC50 fish 2	1,17 mg/l
EC50 Daphnia 1	600 µg/l
sulphuric acid (7664-93-9)	
LC50 fishes 1	> 500 mg/l
EC50 other aquatic organisms 1	> 100 mg/l EC50 waterflea (48 h)
EC50 other aquatic organisms 2	> 100 mg/l IC50 algae (72 h) mg/l

12.2. Persistence and degradability

lead-acid accumulators (Lead-acid batteries)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

lead-acid accumulators (Lead-acid batteries)	
Bioaccumulative potential	Not established.
sulphuric acid (7664-93-9)	
Bioaccumulative potential	not bioaccumulative.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

lead-acid accumulators (Lead-acid batteries)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Other adverse effects

Additional information : Avoid release to the environment

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Additional information	: Empty containers should be taken for recycle, recovery or waste in accordance with local regulation.
Ecology - waste materials	: Avoid release to the environment.
European List of Waste (LoW) code	: 16 06 00 - batteries and accumulators 16 06 01* - lead batteries

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR)	: 2794
UN-No. (IMDG)	: 2794
UN-No. (IATA)	: 2794
UN-No. (ADN)	: 2794
UN-No. (RID)	: 2794

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: BATTERIES, WET, FILLED WITH ACID
Proper Shipping Name (IMDG)	: BATTERIES, WET, FILLED WITH ACID
Proper Shipping Name (IATA)	: Batteries, wet, filled with acid
Proper Shipping Name (ADN)	: BATTERIES, WET, FILLED WITH ACID
Proper Shipping Name (RID)	: BATTERIES, WET, FILLED WITH ACID
Transport document description (ADR)	: UN 2794 BATTERIES, WET, FILLED WITH ACID (sulphuric acid ; Lead and Lead alloys), 8, (E)
Transport document description (IMDG)	: UN 2794 BATTERIES, WET, FILLED WITH ACID, 8
Transport document description (IATA)	: UN 2794 Batteries, wet, filled with acid, 8
Transport document description (ADN)	: UN 2794 BATTERIES, WET, FILLED WITH ACID, 8
Transport document description (RID)	: UN 2794 BATTERIES, WET, FILLED WITH ACID, 8

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



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ADN

Transport hazard class(es) (ADN) : 8

Danger labels (ADN) : 8



RID

Transport hazard class(es) (RID) : 8

Danger labels (RID) : 8



14.4. Packing group

Packing group (ADR) : Not applicable

Packing group (IMDG) : Not applicable

Packing group (IATA) : Not applicable

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

- Overland transport

Classification code (ADR) : C11

Special provisions (ADR) : 295, 598

Limited quantities (ADR) : 1I

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P801, P801a

Transport category (ADR) : 3

Special provisions for carriage - Bulk (ADR) : VC1, VC2, AP8

Hazard identification number (Kemler No.) : 80

Orange plates : 

Tunnel restriction code (ADR) : E

EAC code : 2R

- Transport by sea

Special provisions (IMDG) : 295

Limited quantities (IMDG) : 1 L

Excepted quantities (IMDG) : E0

Packing instructions (IMDG) : P801

EmS-No. (Fire) : F-A

EmS-No. (Spillage) : S-B

Stowage category (IMDG) : A

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Properties and observations (IMDG) : Metal plates immersed in acid electrolyte in a glass, hard rubber or plastics receptacle. When electrically charged, may cause fire through short-circuiting of terminals. Acid electrolyte is corrosive to most metals. Cause burns to skin, eyes and mucous membranes. Used batteries being transported for disposal or reclamation should be carefully checked prior to shipment to ensure the integrity of each battery and its suitability for transport.

MFAG-No : 154

- Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : 870
PCA max net quantity (IATA) : 30kg
CAO packing instructions (IATA) : 870
CAO max net quantity (IATA) : No limit
Special provisions (IATA) : A51, A164, A183
ERG code (IATA) : 8L

- Inland waterway transport

Classification code (ADN) : C11
Special provisions (ADN) : 295, 598
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

- Rail transport

Classification code (RID) : C11
Special provisions (RID) : 295, 598
Limited quantities (RID) : 1L
Excepted quantities (RID) : E0
Packing instructions (RID) : P801, P801a
Transport category (RID) : 3
Special provisions for carriage – Bulk (RID) : VW14
Colis express (express parcels) (RID) : CE8
Hazard identification number (RID) : 80

14.7. Transport in bulk according to Annex II of MARPOL 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 substance on the REACH candidate list

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

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

Abbreviations and acronyms:

PBT	Persistent Bioaccumulative Toxic
vPvB	Very Persistent and Very Bioaccumulative

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

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Other information

: REACH Disclaimer:

This information is based on current knowledge. Consistency of data in the SDS with CSR is considered, as far as the information is available at the time of compilation (cfr Revision date and Version number). **DISCLAIMER OF LIABILITY** The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Full text of H- and EUH-statements:

Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Repr. 1A	Reproductive toxicity, Category 1A
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H332	Harmful if inhaled
H360Df	May damage the unborn child. Suspected of damaging fertility
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects

Safety Data Sheet applicable for regions

: GB - United Kingdom

This Safety Data Sheet is compiled by :

Trade Wind B.V. (info@twnl.com)

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