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

1.1 Product identifier:

The product is considered as an item in accordance with Regulation 1907/2006 / EC (REACH) for which no safety data sheet is required.

The following information is for reference only to ensure the safe use of the product.

Product name: **Lead-Acid Battery, filled with acid for electrical energy storage**

CAS No - **not applicable**

Index No - **not applicable**

EC No - **not applicable**

REACH No - **not applicable**

Authorisation No - **not applicable**

Mixtures: **not applicable**

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

Industrial/Commercial electrical storage batteries.

1.3 Safety data sheet

1.4 Emergency telephone number:

Medical facility: **National Toxicology Center**

Emergency phone/fax:

DENMARK 82 12 12 12

SWEDEN +46 833 12 31

NORWAY 22 591300

EU single emergency telephone number: **112 (Police, Fire department)**

SECTION 2: Hazards identification:

2.1 Classification of the substance or mixture:

Classification according to Regulation 1272/2008 / EC (CLP):

Does not apply to the finished product as an item.

2.2 Label elements:

Does not apply to the finished product as an item. Applicable to components that are not in contact with the rechargeable battery when in its normal state, therefore, in accordance with the rules for chemical safety, product labelling is not mandatory.

2.3 Other hazards:

During charging, a mixture of explosive substances may form inside the battery,
gases containing hydrogen. Flames, lit cigarettes, sparks, or hot materials should be avoided in close to the battery Avoid short circuits between terminals.
To use antistatic materials when cleaning. The product should not be stored in a closed container; to maintain a clean and ventilated environment, protected from direct sunlight and away from sources of heat.
The dilute sulfuric acid solution is corrosive and irritating to the eyes and skin.

Under normal conditions of use there is no danger.

PBT and vPvB: This product does not contain PBT / vPvB chemicals.

SECTION 3: Composition/information on ingredients:

3.1 Substances:

Not applicable.

3.2 Mixtures:

Lead-acid rechargeable batteries contain the following impurities:

Common name	**CAS number**	**EU number**	**REACH number**	**Concentration, (%)**	**Classification 1272/2008 / EC (CLP)**		
					Pictograms	**Category**	**H phrases**
Lead compounds (as Pb)	7439-92-1	231-100-4	01-2119513221-59-0025	39.7±3	GHS08	Lact. Repr. 1A	H360FD H362 H372
Lead dioxide (PbO_2)	7439-92-1 1335-25-7	231-100-4 215-626-1	-	19.5±1.5	GHS03; GHS08; GHS07; GHS09	Ox. Sol. 3 Acute Tox. 4 Acute Tox. 4 Repr. 1 STOT RE 2	H272 H302 H332 H360 H373 H400 H410

						Aquatic Acute 1 Aquatic Chronic 1	
Sulfuric acid	7664-93-9	231-639-5	01-2119458838-20-0104	32.6±3	GHS05	Skin. Corr 1A	H314
Other components	-	-	-	8.2±0.7	-	-	-

Composition comments: Content composition concentrations will vary with battery type/size.

This Lead-acid battery does not contain mercury.*Regulation (EU) 2023/1542*

SECTION 4: First aid measures:

4.1 Description of first aid measures

* General information:

If in doubt or symptoms, seek medical attention.
Never give anything by mouth to an unconscious person

IF INHALED: If breathing difficulties develop, remove person from exposure. If symptoms persist, seek medical attention.
SKIN CONTACT: Flush the exposed skin large amounts of water for 15 minutes, using deluge emergency shower. Remove contaminated clothing. If symptoms persist, seek medical attention.
EYE CONTACT: Force eyes open and rinse with clean, cool, running water for 15 minutes. Do not use eye drops or other medication unless advised to do so by a doctor. Seek immediate medical attention after rinsing.
IF SWALLWOWED: Do not induce vomiting. If conscious, drink large quantities of water/milk. Seek medical attention. Never give anything orally to an unconscious person.

SECTION 5: Firefighting measures:

5.1 Flash point: Not applicable

5.2 Flammable Limits

	Hydrogen	Lower	Upper
In air % of the volume (in charge)	(H2)	4,1 %	74,1 %

5.3 Fire extinguishing agent: Fire extinguisher class ABC, $C0_2$.

5.4 Special firefighting procedures:
The lead acid batteries do not burn or burn with difficulty. Do not use water on fires with the molten metal. Extinguish the fire with an agent that is suitable for the surrounding combustible materials. Cool the battery surface if exposed to fire to prevent rupture. Mists and vapours of the acid generated from the heat or fire are corrosive.

Use self-contained breathing apparatus and full protective equipment, closed in positive pressure mode.

SECTION 6: Accidental release measures:

6.1 Cleaning procedures of expired electrolyte:

Stop the spill, if possible. Avoid contact with the spilled material. Limit the spill, isolate the dangerous area, and prevent access. Neutralize with sodium bicarbonate, soda ash, lime, or another neutralizing agent. Place the battery in suitable container for disposal. Dispose the contaminated material in accordance with the applicable local, state, and federal regulations. Sodium bicarbonate, soda ash, sand, lime, or other neutralizing agent should be kept on site for quick reaction to spills.

Protective equipment: Acid-resistant aprons, boots and protective clothing, safety glasses with side shields/face mask is recommended.

6.2 Environmental precautions

The lead and its components and the sulfuric acid can pose a serious threat to the environment. Contamination of any water, soil and air must be prevented.
Dispose of spilled material and waste in accordance with applicable environmental regulations. Do not allow to enter drains / soil / surface or ground water. Notify the relevant authorities according to local law in case of environmental pollution.

6.3 Methods and materials for cleaning possible spills

In case of small spills:	Collect spilled electrolyte using absorbents. Collect the contaminant in a container. Treatment of contaminated absorbent should be performed according to local regulations.
In case of large spill:	If possible, carefully neutralize the spilled electrolyte with sodium carbonate, sodium bicarbonate. Wear acid-resistant clothing, boots, gloves, and a face mask. Not to allows the release of neutralized acid into the sewer.

SECTION 7: Handling and storage:

7.1 Precautions for handling and storage: Keep away from open flames and during and immediately after charging.

Ignition or recharge may cause or release toxic and dangerous gases and liquids, including hydrogen, sulfuric acid mist, sulfur dioxide, sulfur trioxide, stibine, arsine and sulfuric acid. Store the batteries in a cool, dry, well-ventilated place. Do not short circuit the battery terminals and do not remove the vent plugs during storage or recharge. Protect the batteries from physical damage.

7.2 Other precautions:
Good personal hygiene and work practice are required. Restrain from eating, drinking, or smoking in the work areas. Thoroughly wash your hands, face, and neck before eating, drinking, or smoking. Wash the contaminated clothing before reuse. The empty batteries contain hazardous residues of sulfuric acid.

SECTION 8: Exposure controls/personal protection:

8.1 Control parameters

Respirator for the acid/gas is required when the permissible exposure limit is exceeded, or the employee feels respiratory irritation. When the exposure levels are unknown or in case of firefighting wear self-contained breathing apparatus with full face mask that operates under positive pressure.

Ventilation:	The room must be ventilated and / or ventilated.
Respiratory Protection:	Not required for normal conditions of use.
Eye protection:	Safety glasses with side shields or goggles.
Skin protection:	Wear chemical resistant gloves as a standard procedure to avoid skin contact. Wash hands after handling.
Other:	None required under normal use conditions for gel/absorbed electrolyte type batteries.

8.2 Exposure controls:

Personal precautions

Hygiene measures:	Good general ventilation should be sufficient to control exposure of workers to air pollutants. Wash hands, elbows, and face thoroughly after handling chemical products before eating, smoking, and using the toilet, and at the end of the working day.
Eye/face protection:	Safety goggles complying with the approved one must be worn standard where the risk assessment indicates that this is necessary.

Other protective clothing or equipment:
Acid resistant rubber or plastic, apron, boots and protective clothing, safety shower and eyewash.

8.3 Environmental exposure controls:

Emissions from ventilation or work equipment must be checked to ensure that they comply with the requirements of environmental legislation.

SECTION 9: Physical and chemical properties:

Appearance:	The entire battery is an item consisting of a plastic case with two protruding lead terminals.
Odor:	The battery is odorless.
Odor threshold:	No information
Physical State:	Sulfur Acid is a liquid, Lead is solid
Boiling point:	112-115 ºC
Melting point:	No information
Specific gravity:	Electrolite 1,250-1,320 pH <2
Freezing point:	No information
Vapour density:	1.33 kPa
Solubility in water:	Lead, Lead Oxide and Lead Sulfate are insoluble in Water. Sulfur Acid is 100% soluble in water.
Percent volatile by volume:	No information
Evaporation rate:	No information
Other safety characteristics:	No information

SECTION 10: Stability and reactivity:

Chemical stability and possibility of hazardous reactions: Stable Conditions to avoid:

High temperatures – the box decomposes at <320 °F.
Avoid overcharging and smoking or sparks near the battery surface and quick recharge.

Incompatibility (material to avoid): Sparks, flames. Keep the battery box away from strong oxidizers.

Hazardous decomposition products: Exposure blend of hydrogen/oxygen may occur during the battery charging. Combusting may produce carbon dioxide (CO_2) and carbon monoxide (CO). The molten metals release smoke and/or fumes that can be toxic or irritating to the respiratory organs.

Dangerous polymerization: Will not happen. Do not recharge.

SECTION 11: Toxicological information:

11.1 Information on the likely routes of exposure:
The main ways of lead exposure are ingestion or inhalation.

ACUTE:
INGESTION/INHALATION: Exposition to lead and its components may cause headache, dizziness, vomiting, abdominal cramps, fatigue, sleep disorders, weight loss, anemia, pain in the legs, arms, and joints. Kidney damage and anemia may occur because of acute exposure.

CHRONIC:
INHALATION/INGESTION: Prolonged exposure to lead and its compounds can cause many of the symptoms of the short-term exposition and can cause damage to the central nervous system, leading to gastrointestinal disorders, anemia and sagging of the wrist.

SECTION 12: Ecological information:

Aquatic and terrestrial ecology toxicity: In groundwater and surface water lead forms compounds with anions such as hydroxides, carbonates, sulfates, phosphates, and precipitates out of the water column.

Persistence and degradability: The lead may occur as sorbet ions or surface coatings on sediment mineral particles or may be carries in colloidal particles in surface water.

Bio accumulative potential: The lead (when in dissolved form) is bioaccumulated from plants and animals, both aquatic and terrestrial.

Mobility in soil: Most of the lead remains in the soil because of low mobility. Lead may be immobilized by ion exchange with hydrous oxides or by chelation with humic acids or fulvic acids in soil.

SECTION 13: Disposal considerations:

Lead-acid batteries are completely recyclable. Return whole scrap batteries to distributors, manufacturer, or lead smelter for recycling.
Waste treatment of battery packs should be carried out in accordance with state regulations.

European waste catalog:

Waste code	Name
16 06 01*	lead-acid batteries

Spent lead-acid batteries are not allowed to dispose in the domestic waste or be mixed with other batteries in order not to compliance the processing and to prevent to humans and the environment.

SECTION 14: Transport information:

ADR/RID (road/rail):
UN number: 2794
Proper shipping name: Batteries, wet, filled with acid
Class: 8
Packing group: not applicable Packing instructions: P801, P801a Classification code: C11
Special provisions: 295, 598

Special provision 295:
Batteries need not be individually marked and labelled if the pallet bears the appropriate mark and label.

Special provision 598:
The following are not subject to the requirements of ADR: (a) New storage batteries when:
– they are secured in such a way that they cannot slip, fall or be damaged;
– they are provided with carrying devices, unless they are suitably stacked, e.g. on pallets;
– there are no dangerous traces of alkalis or acids on the outside;
– they are protected against short circuits; (b) Used storage batteries when:
– their cases are undamaged;
– they are secured in such a way that they cannot leak, slip, fall or be damaged, e.g. by stacking on pallets;
– there are no dangerous traces of alkalis or acids on the outside of the items;
– they are protected against short circuits.

"Used storage batteries" means storage batteries carried for recycling at the end of their normal service life.

ICAO/IATA (air):
UN number: 2794
Proper shipping name: Batteries, wet, filled with acid
Class: 8
Packing group: not applicable
Packing instructions: 800
Special provisions: A51, A164

IMDG (sea):
UN number: 2794
Proper shipping name: Batteries, wet, filled with acid
Class: 8
Packing group: not applicable
Marine pollutant: No
Packing instructions: P801
Special provisions: 295

SECTION 15: Regulatory information:

15.1 Safety, health, and health regulations / legislation specific for the substance or mixture environment:

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), to establish a European Chemicals Agency, amending Directive 1999/45 / EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) № 1488/94, Council Directive 76/769 / EEC and Directive 91/155 / EEC, 93/67 / EEC, 93/105 / EC and 2000/21 / EC of the Commission;
- Regulation (EC) 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing directives 67/548 / EEC and 1999/45 / EC and amending Regulation (EC) (1907/2006;
- Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.

In accordance with the EU Battery Regulation and the respective national legislation, Lead-acid batteries must be marked by a crossed-out dustbin with the chemical symbol for lead below, return/recycling symbol.

Pb

SECTION 16: Other information:

The information given above is provided in good faith based on present knowledge and does not constitute an assurance of safety under all conditions. It's the user's responsibility to observe all laws and regulations applicable.

If there are any queries, the supplier should be consulted. However, this shall not continue a guarantee for any specific product feature and shall not establish a legally valid contractual relationship.

SCIP numbers: starter lead-acid battery

- **Starter wet charged batteries** from 28 Ah to 235 Ah - 5c59de18-5aaf-4800-98ea-5882d7482cf0
- **Semi traction wet charged batteries** from 60 Ah to 350 Ah - 2bfed9ef-501a-4227-9e31-24f449944db8
- **Starter dry charged batteries** from 45 Ah to 230 Ah - e087edaa-acfd-4f5d-9833-d4d87cfe5735

Abbreviations:
ICAO: International Civil Aviation Organisation
ADR: 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
CAS: Chemical Abstracts Service (division of the American Chemical Society)