

DRY LEAD ACID BATTERY**1. IDENTIFICATION****1.1 Product identifier** Lead Acid Cell/Battery, Dry

Commercial Product Name Military/Industrial/Commercial electrical storage batteries

Product Code NA

Electrochemical System: Lead Acid without electrolyte

1.2 Usage

Forklifts / Cleaning machines / Electric tractors / Lifting platforms / Electric vehicles / Telecom systems / Monitoring and control systems in power plants and energy stations / Signaling systems at railway stations, airports and seaports / Emergency lighting systems / Data processing systems / Uninterruptible power supply systems (UPS) / Renewable energy systems (solar, wind) / Automation systems

1.3 Details of the supplier of the safety data sheet

Name: SYSTEMS SUNLIGHT S.A.
Address: 2 Ermou & Nikis Str, Syntagma Square 105 63 Athens, Attica, Greece
Phone/Fax: +30 210 6245400 / +30 210 6245409
Factory Name: SUNLIGHT MANUFACTURING PLANT
Address: 67 200 Neo Olvio, Xanthi
Phone/Fax: +30 25410 48100 / +30 25410 95446

Responsible/issuing person: SYSTEMS SUNLIGHT S.A.

1.4 Emergency telephone number

In case of medical emergencies, please contact your local poison control center

Contact telephone number for SYSTEMS SUNLIGHT S.A.: +30 25410 48100

Internet: www.systems-sunlight.com section "contact"






2. Hazards Identification

No hazards occur during the normal operation of a Lead Acid Battery as it is described in the instructions for use that are provided with the Battery. Lead-acid Batteries have three significant characteristics:

- They contain an electrolyte which contains diluted sulphuric acid. Sulphuric acid may cause severe chemical burns.
- During the charging process or during operation they might develop hydrogen gas and oxygen, which under certain circumstances may result in an explosive mixture.
- They can contain a considerable amount of energy, which may be a source of high electrical current and a severe electrical shock in the event of a short circuit.

The Batteries have to be labelled with the symbols listed under item 15.

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3. Composition and Information on the main Ingredients¹⁾

CAS no.	Material Description	Content [% of weight]	Hazards Category and Statement Code, GHS pictograms
7439-92-1	Lead Grid (metallic lead ² , lead alloys with possible traces of additives)	~ 32	 Dgr Repr. 1A - H360Df Lact-H362
n.a.	Active Mass 3 (Battery Oxide, inorganic lead compounds)	~ 32	   Dgs Repr. 1A - H360Df Acute Tox. 4 - H332 Acute Tox. 4 - H302 STOT RE 2 - H373 Aquatic Acute 1 - H400 Aquatic Chronic 1 H410
7664-93-9	Electrolyte 4 (diluted sulphuric acid with additives)	~ 29	 Dgs SkinCorr.1A - H 314
n.a.	Plastic Container / Plastic Parts 5	~ 7	

4. First Aid Measures
4.1 Description of first aid measures

General advice: May form explosive air/gas mixture during charging. Irritating to eyes, respiratory system, and skin. Prolonged inhalation or ingestion may result in serious damage to health. Pregnant women exposed to internal components may experience reproductive/developmental effects.

If inhaled: Respiratory tract irritation and possible long term effects, if lead dust or other components are inhaled.

Skin contact: Direct contact with internal components may cause skin irritation.

Eye contact: Direct contact with internal components may cause severe irritation.

If swallowed: Swallowing this product may cause irritation to the esophagus and digestive tract. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

¹ Contents may vary due to performance data of the battery/cell

² Lead metal (CAS 7439-92-1) is classified as a substance of very high concern under REACH

³ Composition of active mass depends on the state of charge

⁴ Density of the electrolyte varies in accordance to the state of charge

⁵ Composition of the plastic container may vary due to different customer requirements

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5. Fire – Fighting Measures

5.1 Extinguishing media

- *Suitable extinguishing media:* Dry chemical, carbon dioxide foam. Do not use water on live electrical circuits.
- *Unsuitable extinguishing media:* ---

5.2 Special hazards arising from the mixture

- *Specific hazards during firefighting* The product is non-combustible. If heated, corrosive vapours may be formed. Thermal decomposition or combustion may liberate carbon oxides and other hazardous gases or fumes.

5.3 Advice for firefighters

- **Special Fire Fighting Procedures & Protective Equipment:** Use appropriate media for surrounding fire. Do not use carbon dioxide directly on cells/containers due to the possibility of thermal shock causing cracking (and electrolyte leaking after filling). Avoid breathing vapors. Use full protective equipment (bunker gear) and self-contained breathing apparatus.
- **Further information:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Avoid Contact with Skin.

6.2 Environmental precautions:

Prevent spilled material from entering sewers and waterways.

6.3 Methods and material for containment and cleaning up:

Dispose of any non-recyclable materials in accordance with local, state, provincial or federal regulations.

6.4 Reference to other sections

Follow advices and protective measures mentioned in section 7 and 8.

7. Handling and Storage

7.1 Precautions for safe handling

- Keep containers tightly closed when not in use.
- If battery case is broken, avoid contact with internal components.
- Do not handle near heat, sparks, or open flames.
- Protect containers from physical damage to avoid leaks and spills.
- Place cardboard between layers of stacked batteries to avoid damage and short circuits.
- Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.

7.2 Conditions for safe storage, including any incompatibilities

Store batteries in cool, dry, well ventilated area. Do not short circuit battery terminals, or remove vent caps during storage or recharging. Protect battery from physical damage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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8. Exposure controls/personal protection

8.1 Control parameters

Engineering Controls: Store and handle in a well ventilated area.

Work Practices: Charge in a well ventilated area.

Personal Protective Equipment: None required during normal use.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.



Respiratory protection

Not required for normal conditions of use. See also fire-fighting measures (Section 5)



Hand protection

Rubber or plastic acid resistant gloves with elbow length gauntlet.



Eye protection

Wear protective glasses with side shields or goggles.

Other Special Clothing and Equipment: None required during normal use.

Work Practices: Do not wear metallic jewelry when working with charge batteries. Use non-conductive tools only. Discharge static electricity prior to working on a charge battery. Maintain an eyewash, fire extinguisher and emergency communication device in the work area

General safety and hygiene measures: Use only as directed.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance: Industrial/Commercial Lead Acid Battery

Odor: Odorless

Odor Threshold: Na (Not Applicable)

Physical State: Lead, Solid

Solubility In Water: Insoluble

9.2 Other information

Other physical and chemical data have not been determined.

10. Stability and Reactivity

10.1 Reactivity

Stable under normal temperature conditions.

10.2 Chemical stability

This product is stable under normal conditions at ambient temperature.

10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists only for charge cells/batteries (electrolyte) with the following substances:

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Water, Alkali metals, alkali compounds, Ammonia, Aldehydes, acetonitrile, Alkaline earth metals, alkalines, Acids, alkaline earth compounds, Metals, metal alloys, Oxides of phosphorus, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvent, acetylidene, Nitriles, organic nitro compounds, anilines, Peroxides, picrates, nitrides, lithium silicide, iron(III) compounds, bromates, chlorates, Amines, perchlorates, hydrogen peroxide.

10.4 Conditions to avoid

Sparks and other sources of ignition. Overcharging, sources of ignition.

10.5 Incompatible materials

Strong bases, strong reducing agents, strong oxidizers, and water.

10.6 Hazardous decomposition products

Thermal decomposition, such as in a fire, will produce carbon monoxide, carbon dioxide, and numerous small hydrocarbon molecule.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity:

Lead: In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates, and phosphates and precipitates out of the water column. Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil. Lead (when in the dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

Further toxicological information:

Lead: Due to the poor absorbability via the gastrointestinal tract, only very high doses lead to acute case of intoxication. After a latency period of several hours, metallic taste, nausea, vomiting and colics occur, in many instances followed by shock. Chronic uptake causes peripheral muscular weakness, anemia, and central-nervous disorders. Women of child-bearing age should not be exposed to the substance over longer periods of time (observe critical threshold).

12. Ecological Information

12.1 Toxicity

Lead Compounds: Quantitative data on the toxicity are not available

Subacute to chronic toxicity:

Lead Compounds: The risk of an embryo toxic effect must be considered probable. Pregnant women should not be exposed to the product.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

No data available.

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12.6 Other adverse effects

None known.

Further hazardous properties cannot be excluded

Further ecological information:

The product should not be allowed to enter drains, water courses or the soil. If the product contaminates rivers and lakes or drains inform respective authorities.

13. Disposal considerations

13.1 Waste treatment methods

Lead Acid Battery: Do not dispose as household waste. Follow local and National regulations to dispose. Return for recycling

Lead and lead compounds: Dispose as chemical compounds- do not pollute the environment

Disposal code according to the European Waste Catalogue:

Used product : 16 06 01* lead batteries

14. Transport information

US DOT-ADR-RID /ICAO-IATA/IMO-IMDG

Not regulated as a Hazardous Material

Additional Information

Battery, Dry, not subject to Hazardous Material Requirements. Not regulated as a Hazardous Material therefore must not be marked with an identification number or hazardous label and is not subject to hazardous shipping paper requirements.

Special precautions for user

See sections 6, 7 & 8

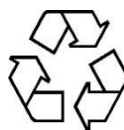
15. Regulatory information

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

VOC (1999/13/EC): Not applicable

Seveso Directive (96/82/EC) : Directive 96/82/EC does not apply.

In accordance with EU Battery Directive and the respective national legislation, Lead-Acid batteries have to be marked by a crossed out dust bin with the chemical symbol for lead shown below, together with the ISO return/recycling symbol.



National legislation

Other regulations: Take note of Dir 94/33/EC on the protection of young people at work.

Further information: Reserved for industrial and professional use. Safety data sheet available for professional user on request.

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15.2 Chemical safety assessment

For this mixture a chemical safety assessment has not been carried out.

16. Other information

16.1 Safety Data Sheet

The European Directive 91/155/EEC which described the requirements for Material Safety Data Sheets had been repealed by the Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals on June 1st, 2007 (REACH-Regulation 1907/2006/EC, Art. 31). The requirement to publish a Safety Data Sheet applies to all suppliers of substances and preparations.

As already defined under the former Directive there is no requirement to develop and maintain a Safety Data Sheet for products such as Batteries.

16.2 Substances of Very High Concern (SVHC)

The publications of the European Chemicals Agency on substances of very high concern are monitored by Systems Sunlight S.A. As defined by REACH, customers will receive the required information if an updated publication may add a substance relevant for our products to the list of SVHC's. On 19 December 2012, four Lead compounds used in the process of battery manufacturing – Lead Monoxide, Lead Tetroxide, Tetralead Trioxide Sulphate and Pentalead Tetraoxide Sulphate – were added to the list of Substances of Very High Concern. As of June 27 2018, Lead Metal was added to the SVHC list as well.

Irrespective of the battery design (flooded, MHF, Gel, AGM) all lead based batteries contain Lead Metal (CAS Nr.: 7439-92-1). The content varies but exceeds the notification threshold of 0,1% w/w.

Batteries ready for use do not contain Oxides or Sulphates that are classified SVHC.

Dry Batteries/dry cells (dry charged plates, delivered without electrolyte) contain more than 0,1 % of Lead Monoxide. Lead Monoxide (CAS Nr.: 1317-36-8) is listed as a substance of very high concern. Once the batteries / cells are filled with electrolyte all Lead Monoxide is transformed and the presence of Lead Monoxide has ended.

16.3 GHS labels

Among others the European GHS regulation describes classification and labelling of chemicals and preparations. GHS is not a regulation that describes labelling requirements for products such as Lead Acid Batteries.

The six pictograms on batteries target to provide safety information and are based on an international standard (EN 50342). These labels remain unaffected.

16.4 General

The information given above is provided in good faith based on existing knowledge and does not constitute an assurance of safety under all conditions. It is the user's responsibility to observe all laws and regulations applicable for storage, use, maintenance or disposal of the product. If there are any queries, the supplier should be consulted.

However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. H314: Causes severe skin burns and eye damage.

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All information provided herein is deemed reliable and is intended to ensure optimal protection during transport, handling and storage of our products.

However, the present should not be considered as a warranty or quality specification.

This information relates to the specific materials designated and may not be valid for such material used in combination with an other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his particular use.

SYSTEMS SUNLIGHT S.A. does not accept liability for any loss or damage that may occur, whether direct, indirect or consequential, from the use of this information.