

## Product Information Sheet

### 1. Product and Company Information

Product Name: Stationary valve-regulated lead acid (VRLA) battery  
LL series

Company name: HID-EUROPE GmbH & Co. KG.

Address: Diekstraat 13; D – 25870 Norderfriedrichskoog / Germany

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Manufacturer: Hitachi

Country of origin: Japan

Sheet reference number: PIS-N-320-006

Remarks: Although issuance of a Material Safety Data Sheet (MSDS) or the products is not mandatory by virtue of laws concerning chemical substances, this sheet is issued to provide information necessary for the safe handling of products and to rouse care for the environment. The article information sheet is subject to change without prior notice.

### 2. Hazardous Information

GHS classification : Not applicable to classification standards

### 3. Information on Composition and Ingredients

Distinction between single substance and mixture : Not applicable (molded article)

Part	Material	Content (%)	CAS No.
Plate	Lead and its compounds	71-78%	7439-92-1 (Pb) 7446-14-2 (PbSO4) 1317-36-8 (PbO2) 1309-60-0 (PbO)
Battery container/lid	PP resin	2-4%	9010-79-1
Separator	Glass fiber	2-3%	65997-17-3
Electrolyte	About 40% sulfuric acid	20-27%	7664-93-9
Other, metal parts	-	Approx. 1% or less	-
Other, resin parts	-	Approx. 1% or less	-

### 4. First Aid Measures (About Electrolyte)

Inhalation: Move to fresh air.

Skin contact: Wash with plenty of water. Seek medical attention if redness or itching persists.

Eye contact: Wash with plenty of water for 15 minutes or more, and seek immediate medical attention.

Ingestion: Gargle with plenty of water repeatedly, drink large amounts of water, and seek immediate medical attention.

## 5. Fire-fighting Measures

Extinguishing media :	Extinguishing media shall include powder, carbon dioxide, or foam fire extinguishers.
Prohibited extinguishing media :	Use of water may cause a steam explosion when the water is in contact with the melted lead.
Specific hazards with regard to fire-fighting measures :	Combustion gases produced by burning synthetic resins contain carbon dioxide, carbon monoxide, nitrogen compounds, and other gases, so firefighters should be careful not to inhale fumes.
Protection of firefighters :	Firefighters should wear protective garment and approach fire from windward.

## 6. Measures against Accidental Release of the Electrolyte

Neutralize the electrolyte with hydrated lime or soda ash and wash it away with plenty of water. Workers should wear goggles, gloves, and boots, and avoid working at downwind side.

## 7. Cautions for Handling and Storage

Handling:	Avoid giving excessive impacts or vibration to battery, such as dropping from high position. Wash with water immediately in case that sulfuric acid leaked from the battery is in contact with skin or clothes. Keep batteries away from heat sources, and do not throw into fire. Do not disassemble or modify battery, and do not short-circuit the terminals. Charge batteries in a well-ventilated area. Avoid contact with covered wires or sheets containing a plasticizer, such as flexible polyvinyl chloride, or organic solvents.
Storage:	Store batteries in a well-ventilated area. Do not store in such places as high temperature, high humidity, rain fall or condensation, direct sunlight, flames, toxic gases, liquid drops, dust, intrusion of foreign matters, or submersion.

## 8. Exposure Control and Personal Protection Measures

Engineering controls:	Avoid installation in sealed space, or installation in such space of spark having switches, fuses, or relays.
Control density:	Not provided (Sulfuric acid)
Permissible density:	ACGIH 0.05 mg/m <sup>3</sup> (Lead and its compounds) 0.2 mg/m <sup>3</sup> (Sulfuric acid) Japan Society for Occupational Health 0.1 mg/m <sup>3</sup> (Lead and its compounds) 1 mg/m <sup>3</sup> (Sulfuric acid)
Protective equipment:	Wear acid resistant gloves (Ex. Rubber gloves etc.)

## 9. Physical and Chemical Properties

Color and appearance:	Sealed black and white PP case assembled with container and lid. (The case has electrolyte, lead, and other parts are inside it.)	
Odor :	None	
pH :	Not applicable as battery is solid state.	
Melting point :	[PP resin]	135-165°C
	[Lead]	327.5°C
Boiling point :	[Electrolyte in the case]	110°C/760 mm Hg
	[Lead]	1740°C
Flash point :	Not identified	
Ignition point :	[PP resin]	400°C
Freezing point :	[Electrolyte in the case]	-56.4°C
Specific gravity (20°C) :	[Battery state]	2.5-3.0
	[Lead]	11.34
	[Lead dioxide]	9.38
	[Lead sulfate]	6.2
	[Sulfuric acid]	1.28 (fully charged)

## 10. Stability and Reactivity

Stable under normal operating conditions.

It is possible that hydrogen sulfide and sulfur dioxide are produced in case batteries are placed in extremely high temperature and in overcharged state.

Refer to MSDS of each chemical substance for the components in battery. (lead, sulfuric acid)

## 11. Toxicological Information

Acute effects :	Ingestion of sulfuric acid may cause severe illness or death.
Skin corrosion/irritation :	Skin contact with sulfuric acid may cause chemical burns.
Serious eye damage / Eye irritation :	Eye contact with sulfuric acid may cause blindness.
Chronic toxicity:	Repeated inhalation of sulfuric acid vapor or mist may cause chronic upper respiratory inflammation or bronchitis.

## 12. Environmental Impact Information

This document is Product Information Sheet of lead acid batteries and is not MSDS.

Components of battery (lead, sulfuric acid) give significantly impact to the environment, so refer to the MSDS of each chemical substance.

## 13. Notices on Disposal

Dispose according to the Waste Management and Public Cleansing Law. Before disposal, insulate the battery terminals to prevent accidental short circuit. Uninsulated terminals may cause explosion or fire. Lead and its compounds are controlled by the Pollutant Release and Transfer Register (PRTR) Law, and the amount of disposal shall be counted.

#### 14. Notice on Transport

International regulations

UN Classification : Class 8 (Corrosive substances)  
UN-Number : UN2800  
Category of goods : Battery (leak-proof design)

Overseas transport

Sea transportation: Listed in UN-2800, TRANSPORT OF DANGEROUS GOODS. But, exempted from the hazardous material category because the battery meets the conditions specified in SPECIAL PROVISIONS.

Air transportation: Exempted from the hazardous material category by the International Air Transportation Association (IATA) because of Special Provisions S.P. A67, under condition that the electrodes are covered by non-conductive caps to avoid short circuits.

Ground transportation

in the U.S. and Canada: In case of transporting valve-regulated lead acid (VRLA) batteries or systems incorporating them by railway or highway, the U.S. DOT (Department of Transportation) requires to indicate the label of "NONSPILLABLE" or "NONSPILLABLE BATTERY" on the package by law to notify transporters of the properties of the transported goods and call attention to its handling.

Domestic regulations: None

Special safety measures/conditions on transportation

- (1) Do not transport in upside-down position, otherwise, cause leakage.
- (2) Transport in a manner to prevent significant vibrations or impacts.
- (3) Basically, avoid transporting batteries incorporated in a device.
- (4) Do not pull up the batteries with their terminals or lead wires holding.

#### 15. Applicable Laws and Regulations

There are no domestic regulatory requirements associated with the batteries; however, applicable regulations for each component are described in section 16 "Other Information". Refer to MSDS of each chemical substance for details.

## 16. Other Information

- The Product Information Sheet was edited based on the Material Safety Data Sheet of each chemical substance, but does not include all of information of them. The information included on this document shall not be guaranteed.
- The precaution information on this document means the ones in usual handling conditions. Take appropriate safety measures in conformity with actual conditions.

Applicable laws and regulations of structure material: Japanese law】

	Sulfuric acid	Lead and its compounds
UN-Number	Class8 Corrosive substance 2796 (Concentration 51 mass % or less)	PbS04: Class8 Corrosive substance 2796 Pb02: Class6.1 Poison 3288
Industrial Safety and Health Act	○	○: Deleterious material which should notify a name etc.
Law prohibiting chemical weapons	-	-
Ozonosphere Protection Law	-	-
Air Pollution Control Law	-	○
Water Pollution Control Law	-	○
Soil Pollution Countermeasures Law	-	○
Poisonous and Deleterious Substances Control Law	○Deleterious substance: Thing containing 10% or less of sulfuric acid is excluded.	○
Water Supply Law	-	○
Labor Standards Law	○	-
Fire Service Law	○: Thing containing 65% or less of sulfuric acid is excluded.	-
Narcotics and Psycho tropics Control Law	○: 10% or less is inapplicable	-
Sewerage Law	-	○
Ship Safety Law	○: corrosive substance	-
Port Regulation Law	○: corrosive substance	-
Civil Aeronautics Act	○: corrosive substance	-
Marine Pollution Prevention Law	○: Z Quality of a marine pollutant	-
Road Law	○	-
Waste Management and Public Cleansing Law	○	○
Foreign Exchange Law (Export)	○: Over 10% of concentration and Over20 kg	-
Foreign Exchange Law (Import)	○: Over 10% of concentration and The total price of over 300,000 yen	-
*1 The Basel Law	-	○
Ordinance on Prevention of Lead Poisoning	-	○
*2 The Law for PRTR and Promotion of Chemical Management	-	Pb : First sort 1-304 PbS04, Pb02, Pb0: Specification first sort 1-305

\*1 The Basel Law: Law for the Control of the Export, Import, and Others of Specified Hazardous Wastes and Other Wastes

\*2 The Law for PRTR and Promotion of Chemical Management: The Law Concerning the Reporting of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in their Management.

**【Overseas regulations】**

(1) European Union

The EU Battery Directive (Directive on batteries and accumulators containing certain dangerous substances) applies to lead-acid batteries.

\* They are exempt from the RoHS directive because they are under the EU Battery Directive.

(2) Rule of each country

	Sulfuric acid	Lead and its compounds				Other Metal		
		Pb	PbSO4	PbO2	PbO	Ca	Sn	Ba
European Inventory of Existing Commercial Chemical Substances (EINECS)	231-639-5	231-100-4	231-198-9	215-174-5	215-267-0	231-179-5	231-141-8	231-149-1
REACH high concern substance (SVHC)	-	-	-	-	-	-	-	-
U.S. toxic substance rule method (TSCA)	Printing	Printing	Printing	Printing	Printing	Printing	Printing	Printing
OECD/High throughput chemical substance	Printing	Printing	Printing	Printing	Printing	Printing	Printing	-
ICCA/High throughput chemical substance	Printing	-	-	-	Printing	-	-	-
POPs Convention (Stockholm) /Persistent organic pollutants	-	-	-	-	-	-	-	-
PIC Convention (Rotterdam)	-	-	-	-	-	-	-	-

(3) California State Proposition 65

Lead, lead compounds, and other chemical substances contained in the battery electrode pillars, terminals, and other parts are specified by the state of California as substances that may cause cancer, birth defects, or other reproductive harm. Wash hands after handling the battery.