



HOLLANDIA POWER INC

Postbus 97687, 2509 GB The Hague- Holland

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MATERIAL SAFETY DATA SHEET

SEC. 1:PRODUCT IDENTIFICATION	
Updated: Sep. 30, 2013	
Chemical/Trade Name (as used on label)	Chemical Family/Classification
Sealed Lead Acid Battery	Solar Storage Battery
Supplier's Name	Address
HOLLANDIA POWER INC	Postbus 97687, 2509 GB The Hague- Holland

SEC.2: CONTACT	
HOLLANDIA POWER INC	+31 70 3244 348

SEC. 3: HAZARDOUS INGREDIENTS/IDENTITY INFORMATION					
Item	%Weight	CSHAPEL (TLV)	LD50 Oral	LD50 Inhalation	LD50 Contact
Lead(Pb,PbO ₂ ,PbSO ₄)	67%	0.050mg/m ³	<500mg/kg	<20mg/m ³	n/a
Sulfuric acid	18%	1mg/m ³	2.135mg/kg	17mg/m ³	130mg/kg
Fiberglass separator	1.50%	—	—	—	—
ABS	10.50%	—	—	—	—
Others (glue, safety valve terminal. O-ring ...ect)	3%	—	—	—	—

SEC. 4 : PHYSICAL/CHEMICAL CHARACTERISTIC DATA					
Material is Solid at normal temperatures.					
Component	Density	Melting Points	Solubility in Water	Odor	Appearance
Lead	11.34 g/cm ³	327.4°C	None	None	Silver-Grey metal
Lead sulfate	6.32 g/cm ³	1000°C	40mg/L(15°C)	None	White Powder



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Lead dioxide	9.37 g/cm ³	289°C	None	Acidic	Brown Powder
Sulfuric acid	1.300(20°C)	114°C	100%	None	Clear Colorless Liquid
Fiberglass	135-175	>=900°C	Slight	None	White Fibrous Glass
Separator	g/m ² mm				
ABS	1.05 s.g.	20g/10min (220°C/10kg)	None	None	Solid plastics

SEC. 5 : HEALTH HAZARD INFORMATION

Under normal operating conditions, the internal material will not be hazardous to your health. Only internally exposed material during production or case breakage or extreme heat (fire) may be hazardous to your health.

Routes of Entry:

Installation	Acid mist from formation process may cause respiratory irritation.
Skin Contact	Acid may cause irritation, burns and/or ulceration.
Skin Absorption	Not a significant route of entry.
Eye Contact	Acid may cause sever irritation, burns, cornea damage and/or blindness.
Ingestion	Acid may cause irritation of mouth, throat, esophagus and stomach.

Sign and Symptoms of Over Exposure:

Acute Effects	Over exposure to lead may lead to loss of appetite, constipation, sleeplessness and fatigue. Over exposure to acid may lead to skin irritation, corneal damage of the eyes and upper respiratory system.
Chronic Effects	Lead and its components may cause damage to kidneys and nervous system. Acid and its components may cause lung damage and pulmonary conditions.
Potential to Cause Cancer	The International Agency for Research on Cancer has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.

Emergency and First Aid Procedures:

Inhalation	Remove from exposure and apply oxygen if breathing is difficult.
Skin	Wash with plenty of soap and water. Remove any contaminated clothing.



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Eyes	Flush with plenty of water immediately for at least 15 minutes. Consult a physician.
Ingestion	Consult a physician immediately.

SEC. 6: FIRE AND EXPLOSION HAZARD DATA

Flash Point	Hydrogen = 259oC
Auto ignition Temperature	Hydrogen = 580oC
Extinguishing Media	Dry Chemical, foam, CO2
Unusual Fire and Explosion Hazards	Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.

SEC. 7 : REACTIVITY DATA

Stability	Stable
Conditions to Avoid	Sparks and other sources of ignition

Incompatibility: (materials to avoid)

1.	Lead/lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur.
2.	Battery electrolyte (acid): Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.

Hazardous Decomposition Products

1.	Lead/lead compounds: Oxides of lead and sulfur.
2.	Battery electrolyte (acid): Hydrogen, sulfur dioxide, and sulfur trioxide.

Conditions to Avoid

High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.

SEC. 8: CONTROL MEASURES

Engineering Controls:

Store lead/acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby



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power generation. Never recharge batteries in an unventilated, enclosed space.

Work Practices:

Do not remove vent caps. Follow shipping and handling instructions that are applicable to the battery type. To avoid damage to terminals and seals, do not double-stack industrial batteries.

SEC. 9 : PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection:

None required under normal handling conditions. During battery formation (high-rate charge condition), acid mist can be generated which may cause respiratory irritation. Also, if acid spillage occurs in a confined space, exposure may occur. If irritation occurs, wear a respirator suitable for protection against acid mist.

Eyes and Face:

Chemical splash goggles are preferred. Also acceptable are "visor-gogs" or a chemical face shield worn over safety glasses.

Hands, Arms, Body:

Vinyl coated, VC, gauntlet type gloves with rough finish are preferred.

Other Special Clothing and Equipment:

Safety shoes are recommended when handling batteries. All footwear must meet requirements of

SEC. 10 : PRECAUTIONS FOR SAFE HANDLING AND USE

Hygiene Practices:

Following contact with internal battery components, wash hand thoroughly before eating, drinking, or smoking.

Respiratory Protection:

Wear safety glasses. Do not permit flames or sparks in the vicinity of battery(s). If battery electrolyte (acid) comes in contact with clothing, discard clothing.



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SEC. 11 : TRANSPORTATION REGULATIONS

We here by certify that all Hollandia VRLA batteries are non-hazardous materials for air and sea transportation in any nature. These batteries confirmed to UN2800 special provision A67 and packing 806 in IATA dangerous goods regulations.

The batteries are packed in a manner to prevent short circuits and with a outer label of "Non-spillable" to comply with regulation by IATA.

Protective Measures:

a.	Remove combustible materials and all sources of ignition. Cover sills with soda ash (sodium carbonate) or quicklime (calcium oxide). Mix well. Make certain mixture is neutral then collect residue and place in a drum or other suitable container. Dispose of a hazardous waste.
b.	Wear acid-resistant boots, chemical face shield, chemical splash goggles, and acid-resistant gloves. Do not release un-neutralized acid.

Waste Disposal Method:

Battery electrolyte (acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as hazardous waste. Do not flush lead contaminated acid to sewer.

Other Handling and Storage Precautions:

None Required.