

## Material Safety Data Sheet



**GS YUASA POWER SUPPLY LTD.**

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MSDS No. 049C

Product Name (Chemicals name or Merchandise Name) : Valve Regulated Lead-Acid Battery			
<u>Identification of substance</u>			
	Plate	Lead	70~80%
	Electrolyte	sulfuric acid of 41~45% density (H <sub>2</sub> SO <sub>4</sub> + H <sub>2</sub> O)	10~20%
	Container and lid	Synthetic resin (PP, ABS)	8~10%
<u>Classification of Hazardousness and Poisonous materials</u>			
	Classification name	Classification standard not applicable to batteries.	
	Hazardousness	Charging a battery generates hydrogen and oxygen gases. Exposure of fire to them may catch a fire, resulting in an explosion.	
	Poisonous material	Exposure of electrolyte to skin or an eye may result in a burn or a loss of eyesight.	
	Effect on Environment	Highly concentrated electrolyte may adversely affect living things such as animals and plants.	
<u>Emergency Measures</u>			
	When electrolyte contacts the eyes	Immediately flush the eye sufficiently with water, and have immediate medical treatment.	
	When electrolyte is attached to skin	Immediately wash it down with a large quantity of water, and thoroughly wash the skin with soap. If there is a fear of burn, have immediate medical treatment.	
	When electrolyte is swallowed	Immediately rinse the mouth with a large quantity of fresh water, and drink another large quantity of fresh water. Then, have immediate medical treatment. Do not disgorge the electrolyte or water that have been drunk. Do not try to neutralize.	

Action at the Time of Fire																				
	Fire fighting method	Extinguish a fire using a fire extinguisher of dry powder agent, foam agent or non-combustible gas.																		
Action at The Time of Electrolyte Leak or Outflow																				
		Neutralize the leaked electrolyte with soda bicarbonate or slaked lime, then wash it down with massive amount of water. (At that time, be sure to wear protective goggles, gloves, and gum boots.)																		
Handling and Storing Precautions																				
	Handling:	<ul style="list-style-type: none"> <li>• Do not put a fire close to the battery. Do not short it between the terminals.</li> <li>• Charge the battery in a well-ventilated room.</li> </ul>																		
	Storing:	Choose a place that is not exposed to high temperatures, high humidity, wind and rain, direct sunlight, fire, poisonous gasses, droplets, dust generation or ingress, or submersion.																		
Exposure Inhibiting Device																				
Keep the handling and storing precautions especially during charging when Hydrogen gas and sulfuric acid mist are generated.																				
Keep the regulations for export since electrolyte (dilute sulfuric acid) may leak in case the battery is turned, fallen or given a strong impact.																				
Not applicable to batteries.																				
Physical/ Chemical Properties																				
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	Materials	<table border="1"> <thead> <tr> <th></th> <th><u>Dilute sulfuric acid</u> (at 20°C)</th> <th><u>Lead</u></th> </tr> </thead> <tbody> <tr> <td>• Outer appearance</td> <td>Transparent liquid</td> <td>Silver white solid</td> </tr> <tr> <td>• Specific gravity</td> <td>1.31~1.35</td> <td>11.3</td> </tr> <tr> <td>• Boiling point</td> <td>Approx. 112°C</td> <td>1,740°C</td> </tr> <tr> <td>• Melting point</td> <td>-40°C or lower</td> <td>327°C</td> </tr> <tr> <td>• Freezing point</td> <td>Approx. -60°C</td> <td>-</td> </tr> </tbody> </table>		<u>Dilute sulfuric acid</u> (at 20°C)	<u>Lead</u>	• Outer appearance	Transparent liquid	Silver white solid	• Specific gravity	1.31~1.35	11.3	• Boiling point	Approx. 112°C	1,740°C	• Melting point	-40°C or lower	327°C	• Freezing point	Approx. -60°C	-
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	Materials	<u>Synthetic resin (PP, ABS)</u>	
	• Outer appearance	Half transparent milky white or Cream Solid	
	• Specific gravity	Approx. 1.00	
	• Boiling point	-	
	• Melting point	110~165°C	
	• Freezing point	-	
	• Vapor pressure	-	
<b>Hazardousness information</b>			
As per "Classification of Hazardousness and Poisonous materials" above.			
<b>Poisonous materials information</b>			
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<b>Environmental information</b>			
As per "Classification of Hazardousness and Poisonous materials" above.			
<b>Disposing precautions</b>			
Used batteries shall be recycled for reuse in accordance with relative national law and regulations.			
<b>Transporting precautions</b>			
Try to avoid mingling batteries with other substances. Handle with care so that no electrolyte leak occurs by overturning or dropping a battery.			
<b>Applicable laws and regulations</b>			
• Poison and Deleterious Substance Control Law:			
• Hazardous Materials Storage and Ship Transportation Regulations			
	UN Number	2796	2800
	Dangerous Goods	8	8
	Packing Group	II	III
	Special Provision	-	A48, A67