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Material Safety Data Sheet

YUASA CORPORATION

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Product Name: (Chemicals name or Merchandise Name) : TYPE—NP, NPH, NPC, RE Lead-Acid Battery

Identification of substance

Identification of single- or mixed substance product: Mixed-substance product

	Plate	Lead and lead compounds (Pb & PbO_2) Barium compound (Ba^{++})	70-75% 0.3% or below
	Electrolyte	abt. 40% dilute sulfuric acid ($H_2SO_4 + H_2O$)	15-25%
	Battery container	ABS resin (synthetic resin)	4-6%
	Cover	ABS resin (synthetic resin)	1-2%
	Separator	Glass Fiber	1-3%
	Other resin parts	PP, Epoxy resin and Rubber	0.5-1.0%
	Other metal parts	Brass	1% or below

Classification of Hazardousness and Poisonousness

	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.
	Poisonousness	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.

Emergency Measures

	When electrolyte is inhaled:	Move to a place full of fresh air and 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.
	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 contacts the eyes	Immediately flush the eye sufficiently with water, and have immediate medical treatment.

RS Stock Nos:

1) 385956
2) 1287028
3) 1287078
4) 1287084
5) 1287090
6) 1287113
7) 1287359
8) 1288043
9) 3204471
10) 3204514

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. (At that time, be sure to wear protective goggles, gloves, and boots.)
Handling and Storing Precautions		
	Handling:	• Do not disassemble or modify the battery, nor short it between the terminals. • Do not put a fire close to the battery, or throw it into a fire. • Handle batteries as heavy objects. • With vents provided in a cubicle, for example, charge the battery in a well ventilated room.
	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		
		Not applicable to batteries.
Physical/ Chemical Properties		
	Not applicable to batteries.	

Materials (as example)	Dilute sulfuric acid (for 1.3 of specific gravity)	Lead
• Outer appearance	Transparent liquid	Silver white solid
• Specific gravity	1.3	11.3
• Boiling point	110℃	1,740℃
• Melting point	-40℃	327℃
• Freezing point	-56.4℃	—
• Vapor pressure	3.17 kPa (for 30% concentration at 30℃)	0.1 kPa (at 25℃)

	Materials (as example)	ABS resin	PP resin
	• Outer appearance	Solid	Solid
	• Specific gravity	1.02-1.10	0.9-1.1
	• Boiling point	-	-
	• Melting point	No specific point, but softens gradually in wide range of temperature. (about 130-150℃)	No specific point, but softens gradually in wide range of temperature. (about 125℃)
	• Solubility	Insoluble	Insoluble

Hazardousness information

As per "Classification of Hazardousness and Poisonousness" above.

Poisonousness information

As per "Classification of Hazardousness and Poisonousness" above.

Environmental information

As per "Classification of Hazardousness and Poisonousness" above.

Disposing precautions

Used batteries shall be recycled for reuse in accordance with relative national law and regulations.

Transporting precautions

Try to avoid mingling batteries with other substances. Handle with care so that no electrolyte leak occurs by overturning or dropping a battery.

Applicable laws and regulations

	• Poison and Deleterious Substance Control Law:	Electrolyte falls under "Deleterious Substance Category".
	• Labor Safety & Hygiene Law:	Lead falls under "Class 3 Substance" in Specific Chemical Substance Category.
	• Hazardous Materials Storage and Ship Transportation Regulations:	Electrolyte falls under "Corrosive Substance Category".
	• Fire Services Act:	Terminal materials fall under "Substances Inhibiting Fire Fighting".