# Material Safety Data Sheet

**GS Yuasa International Ltd.**

Quality Assurance Department Industrial Battery Production Division

Industrial Batteries & Power Sources Business Unit

Emergency contact: TEL 81-75-316-3619 FAX 81-75-312-0379

1,Inobanba-cho,Nishinosho,Kisshoin,Minami-ku,Kyoto,601-8520,Japan

Prepared on October 29, 2002 Revised on June 26, 2010

**Product Name**: (Chemicals name or Merchandise Name): SNL, STH TYPE Lead-Acid Battery (FLAME RETARDANT HB)

## Identification of substance

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

| Parts | Material | Approximate%_by wt. | CAS Number |
|---|---|---|---|
| Plate | Lead and lead compounds | 65-75% | 7439-92-1(Pb) |
| | Barium compound | 0.2% or below | 7440-39-3 (Ba) |
| Electrolyte | sulfuric acid ($H_2SO_4$) | 18-25% | 7664-93-9 |
| Battery container Cover | PP resin (synthetic resin) | 2-8% | 9003-07-0 |
| Separator | Glass | 1.5-2% | - |
| Other resin parts | ABS (synthetic resin), Epoxy resin and Rubber etc. | 1% or below | 9003-56-9(ABS) |
| 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. |

## 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.<br>• Do not put a fire close to the battery, or throw it into a fire.<br>• Handle batteries as heavy objects.<br>• 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 | PP resin |
|---|---|---|---|
| • Outer appearance | Transparent liquid | Silver white solid | solid |
| • Specific gravity | 1.3 | 11.3 | 0.9-1.1 |
| • Boiling point | 110℃ | 1,740℃ | - |
| • Melting point | -40℃ | 327℃- | 125℃ or over |
| • Freezing point | -56.4℃ | - | - |
| • Vapor pressure | 3.17 k Pa (for 30% concentration at 30℃) | 0.1 k Pa (at 25℃) | - |

**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". |

**Law on transport :**

( Shipping )
Sealed Lead Acid Battery is correspond UN-2800 on TRANSPORT OF DANGEROUS GOODS.
But The Battery Is not correspond to dangerous goods because it satisfied
SPECIAL PROVISIONS.
Information of TRANSPORT OF DANGEROUS GOODS is attached.

( Air )
Sealed Lead Acid Battery is correspond to an escape Clause A67 of dangerous goods in IATA.
Information of IATA is attached.

(Land transportation In U.S.A and Canada)
"NONSPILABLE" or "NONSPILLABLE BATTERY" must be described on battery or package in order to call the attention of nature of transport goods to the drivers.
According to law 173-159 by Department of Transportation (DOT).

**Applied Standard** : JIS C 8704-2, IEC 60896-21 60896-22

**TSCA**

Ingredients in Yuasa batteries are listed in the TSCA registry as follows:

| Components | CAS number | TSCA status |
|---|---|---|
| Electrolyte | | |
| Sulfuric Acid ($H_2SO_4$) | 7664-93-9 | listed |
| Inorganic lead compound: | | |
| lead (Pb) | 7439-92-1 | listed |
| Lead oxide (PbO2) | 1317-36-8 | listed |
| Lead sulfate (PbSO4) | 7446-14-2 | listed |
| Calcium (Ca) | 7440-70-2 | listed |
| Tin (Sn) | 7440-31-5 | listed |
| Barium (Ba) | 7440-39-3 | listed |

**California prop 65**

Battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.
Wash hands after handling.

This information is accurate to the best of GS Yuasa International' s knowledge or obtained from sources believed by GS Yuasa International to be accurate. Before using any product, read all warnings and directions on the level.
For additional information concerning GS Yuasa International products or questions concerning the content of this MSDS please contact GS Yuasa International representative.