GS Yuasa Energy Solutions, Inc.
SAFETY DATA SHEET

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**Lithium Ion rechargeable Battery Module**		
Model Name:	LIM50EL-8S2-F2 LIM50EL-12S2-F2-1 LIM50EL-12S2-U2X LIM50ES-12S2-U2	LIM50EL-8S3-F1 LIM50EL-12S2-F2-P1 LIM50EL-13T1-J1	LIM50EL-12S2-F2 LIM50EL-12S2-U2 LIM50EL-14T1-J1
Company Name	**GS Yuasa Energy Solutions, Inc.**		
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24 Hour Emergency telephone number	CHEMTREC	Domestic: (800) 429-9300 International: +1 (703) 527-3887	

SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Type of Composition, Mixture		
Ingredient	**CAS number**	**Content (wt %)**
Lithium manganese oxide	12057-17-9	18 – 24
Cobalt lithium manganese nickel oxide	182442-95-1	8 – 13
Carbon	7782-42-5	8 – 13
Organic electrolyte*	-	10 – 17

* Classified as "Category IV Class II petroleum" by Fire Services Act.

SECTION 3: HAZARDS IDENTIFICATION

In normal use, there is no influence on the person's health. Since the chemical is enclosed within the metal case and sealed up, the person cannot touch the chemical directly. However, there is the possibility of the liquid leakage, generation of heat, and the gas formation when not properly used. In the worst case there is a possibility of the ignition. Moreover, there is a possibility of the liquid leakage, generation of heat, and the gas formation when the battery receives strong heat due to a fire.

SECTION 4: FIRST AID MEASURES

Take the following measures, when the internal battery materials begins to leak from a battery module.

・Inhalation of volatile gas
  Blow your nose and gargle. Seek medical attention if necessary.
・Touching of the internal battery materials with skin
  Wash the region with soap and plenty water. Remove the materials completely
・Touching of the internal battery materials with eyes
  Immediately wash your eyes with fresh water continuously for at least 15 minutes. Seek medical attention if necessary.

SECTION 5: FIRE-FIGHTING MEASURES

Fire fighting procedure
Wear protective equipment (protective glasses, protective gloves) to avoid touching internal battery materials on your eyes and skin directly. Do not bring the materials close to fire as they ignite easily. Open the window or turn on the ventilation fan to create fresh air conditions. Remain upwind in order to avoid inhaling volatile gas.

Extinguishing media
Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium, fire foam, HFC227ea (FM200)

SECTION 6: ACCIDENTAL RELEASE MEASURES

Wear protective equipment (protective glasses, protective gloves) to avoid touching internal battery materials on your eyes and skin directly. Ventilate the area for avoiding inhaling volatile gas as much as possible.

SECTION 7: HANDLING AND STORAGE

Handling
  Do not disassemble the battery module.
  Do not make a hole or apply pressure.
  Do not heat or place near fire.
  Do not short-circuit the (+) and the (-) sides.
  Use only exclusive charger or keep on specified charging condition
Storage
  Store in cool place under 50 degree C.
  Store in ventilated place
  Do not store under high temperature even if it is temporary
  Prevent short-circuit
  Do not store with conducting material, water, seawater, strong oxidizers and strong acid

SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

No special protection is needed in normal use. Since the chemical is enclosed within the metal case and sealed up, the person cannot touch the chemical directly. However, there is the possibility of the liquid leakage, generation of heat, and the gas formation when not properly used. However, ventilate the area well if improper usage occurs and the battery leaks electrolyte and volatile gas is released.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Electrolyte: Non aqueous and volatile
(Flash point – approx. 25 degree C, Autoignition temperature – approx. 400 degree C)

SECTION 10: STABILITY AND REACTIVITY

In normal use, there is no influence on the person’s health. However, there is the possibility of the liquid leakage, generation of heat, and the gas formation when overheating is received from the outside.

SECTION 11: TOXICOLOGICAL INFORMATION

Not applicable

SECTION 12: ECOLOGICAL INFORMATION

Not applicable

SECTION 13: DISPOSAL CONDITION

The product must be disposed of as an industrial waste in conformity with national and local laws. In Japan the product classified into Industrial Waste.

SECTION 14: TRANSPORT INFORMATION

・Avoid leaving the battery under direct rain and direct sunlight
・Avoid leaving the battery in high temperature and high humidity and dew condensation
・Never drop, fall and break the cargo
・Indicate Lithium Ion rechargeable Battery in conformity with the regulations
・Please refer to section 7 “Handling and Storage”

Lithium-ion batteries are classified as Class 9 dangerous goods of UN dangerous goods number UN 3480 or UN 3481 (incorporated in equipment or bundled with equipment), and they are subject to several regulations described in paragraph 15. Please package and transport properly according to the regulations.
・The products mentioned in paragraph 1, have watt hour exceeding 100 Wh. Therefore, they are not subject to exclusion of dangerous goods of the special provision SP188.
・The following products meet the test requirements of "UN Manual of Tests and Criteria, Part 3, subsection 38.3".

LIM50EL-8S2-F2	LIM50EL-8S3-F1	LIM50EL-12S2-F2
LIM50EL-12S2-F2-1	LIM50EL-12S2-F2-P1	LIM50EL-12S2-U2
LIM50EL-12S2-U2X	LIM50EL-13T1-J1	LIM50EL-14T1-J1
LIM50ES-12S2-U2		

SECTION 15: REGULATORY INFORMATION

・UN (United Nations):
Recommendations on the Transportation of Dangerous Goods, Model Regulations 19threv.
・ICAO (International Civil Aviation Organization) :
Technical Instructions for the safety transport of dangerous goods.
・IATA (International Air Transport Organization) :
Dangerous Goods Regulations 54th
・IMO (International Maritime Organization) :
International Maritime Dangerous Goods (IMDG) Code
・ADR (European Agreement Concerning the International carriage of Dangerous Goods by road)

SECTION 16: OTHER INFORMATION

This data sheet provides guidance on health, safety and environmental aspects of the product. The data sheet is based on the present state of knowledge and current legislation and should not be construed as any guarantee of technical performance or suitability for particular applications.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety, and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.