



GS Yuasa Technology Ltd.

Material Safety Data Sheet

LIM30H 30Ah 3.6V Lithium Ion Cell

Section I – Product Identification

Manufacturer's name GS Yuasa Technology Ltd. 1 Inobabacho, Nishinosho, Kisshoin Minami-ku Kyoto, JAPAN	Emergency Telephone Number
	CHEMTREC: (800) 424-9300
	Telephone Number for Information
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Section II—Hazardous Ingredients/Identity Information

Component(s)	CAS Number	Approx wt%	OSHA PEL ($\mu\text{g}/\text{m}^3$)	ACGIH TLV ($\mu\text{g}/\text{m}^3$)	NIOSH ($\mu\text{g}/\text{m}^3$)
Lithium Manganese Oxide	12057-17-9		5000	200	N/A
Organic Solvents			N/A	N/A	N/A
Lithium Hexafluorophosphate	21324-40-3		2500	2500	N/A

Section III—Physical/Chemical Characteristics

Substance	Description (room temp)	Melting Point °C	Boiling Point °C	Density g/cm ³	Vapor Pressure hPa	Soluble in water	Flash Point °C
LiMnO ₄	Dark powder	>400°C	N/A		N/A		ND
Carbon	Black dust/powder			2.1-22			
Organic Solvents	Liquid, colorless						
LiPF ₆	White powder	160°C ¹	ND	1.5	ND	Yes	ND

1 = decomposition temperature

Section IV—Fire and Explosion Hazard Data

Flash Point (Method Used) N/A	LEL N/A	UEL N/A
Flammable Limits: Not determined		
Extinguishing Media: Use large amount of water, LITH-X or dry chemical, foam or CO ₂		
Special Fire Fighting Procedures: If batteries are on charge, shut of power. Use positive pressure, self-contained breathing apparatus. Use large amount of water if cells/batteries have been opened/crushed/damaged.		
Unusual Fire and Explosion Hazards: Do not contact cell/battery terminals with metallic objects or short circuit will occur.		

Section V—Reactivity Data			
Stability	Unstable		Conditions to Avoid
	Stable	X	Prolonged overcharge on high current, ignition sources, damaging cell case, puncture, crush, nail penetration, excessive high temperature/flame/fire
Incompatibility (Materials to Avoid)			
<p>Electrode Materials: Electrode materials are completely sealed inside cells during normal operation. In case of abuse/cell case rupture avoid moisture, water, and high humidity air environments.</p> <p>Electrolyte Materials: Electrolyte is completely sealed inside cells during normal operation. In case of abuse/cell case rupture avoid heat, sparks, or other ignition sources. Electrolyte materials do not mix with water for dilution purposes.</p>			
Hazardous Decomposition or Byproducts			
Under normal operation hazardous decomposition or hazardous polymerization will occur. In case of fire Hydrogen Fluoride can be formed if water is used to extinguish.			
Section VI—Health Hazard Data			
Route(s) of Entry	Inhalation?	Skin Contact	Ingestion
	YES	YES	YES
Chronic and Acute Health Hazards			
The cell/battery is a self contained sealed container. Risk of exposure occurs only if the container is ruptured from mechanical or electrical abuse. In case of safety vent opening risk is from organic solvents irritating the respiratory tract and eyes. Lithium salt is irritating to skin, eyes, mucous membranes and should be avoided.			
Carcinogenicity			
NTP: NONE			
Medical Conditions Generally Aggravated by Exposure			
In case of safety vent opening, fumes may irritate respiratory tract of those with asthma or other breathing condition.			
Emergency and First Aid Procedures			
NORMAL CELL USE REQUIRES NO EMERGENCY PROCEDURES< ONLY REQUIRED IN CASE OF CELL ABUSE AND OR CASE RUPTURE			
Inhalation:			
Remove to fresh air immediately. If breathing is difficult, give oxygen			
Ingestion:			
Do not induce vomiting, consult a physician immediately.			
Eyes			
Flush immediately with water for 15 minutes, consult a physician.			
Skin:			
Flush with large amounts of water for at least 15 minutes, remove any contaminated clothing. If irritation develops seek medical attention.			
Section VII—Precautions for Safe Handling and Use			
Steps to Be Taken in Case Material Is Released or Spilled			
There is no release of material unless the case is damaged or battery is misused/overcharged. If release occurs leave area and allow fumes to dissipate. Absorb spilled electrolyte with absorbent materials dispose of properly. Electrolyte is flammable when spilled			
Waste Disposal Method			
Spent Batteries – send to lithium ion recycling facility. Contact our company for additional information.			
Precautions to Be Taken in Handling and Storing			
Store batteries in a cool, dry, well ventilated area that are separated from incompatible materials and any activities which may generate flames, sparks, or heat. Keep all metallic articles that could contact the negative and positive terminals on a battery and create a short circuit condition.			

Section VIII—Control Measures	
Respiratory Protection (Specify Type)	
None required under normal conditions.	
Engineering Controls:	
Store and handle batteries in a well ventilated area. If mechanical ventilation is used, components must be acid resistant	
Protective Gloves	Eye Protection
None needed under normal conditions. If battery case is damaged use rubber or plastic gloves with elbow length gauntlet.	None needed under normal conditions. If handling damaged or broken batteries use chemical splash goggles or face shield.
Other Protective Clothing or Equipment	
None needed under normal conditions. In case of damaged or broken battery use an acid resistant apron. Under severe exposure or emergency conditions wear acid resistant clothing.	
Work/Hygienic Practices	
Handle batteries carefully to avoid damaging the case. Do not allow metallic articles to contact the battery terminals during handling. Avoid contact with the internal components of the battery.	
Section IX—Regulatory Information	
Transportation:	
U.S. DOT/IMDG/IATA Shipping information	
Lithium ion cell and battery transportation is governed by authorities such as US-DOT, IATA, IMDG and these authorities follow the UN Guidelines ("Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria", Rev. 3 Part III sub-section 38.3	
Regulatory Information	
The Equivalent Lithium Content of LIM30H cells is 9g which exceeds the threshold for mandatory CLASS 9 Hazardous Goods. (UN 3090 shipping code). The LIM30H has passed all required safety tests as listed in the UN "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria", Rev. 3 Part III sub-section 38.3. Therefore LIM30H cells can be transported following the restrictions of CLASS 9 Hazardous goods.	