MATERIAL SAFETY DATA SHEET

Manufacturer Information：
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Product Information

Product Name：	Rechargeable Lithium Ion Battery Pack
Model NO：	GNARBOX 2.0
Rating :	7.6V,2950mAh,22.42Wh

Hazards Identification

- Health Hazard Effect：
  The battery pack interior airtight chemical substance, if the artificial/machinery/electron improper use destroys, causes the chemical substance outside or the gas leaks causes the skin/eye damage and explodes .
- Environment Influence：
  Since a battery cell remains in the environment, do not throw out it into the environment.
- Physics/Chemical damage：-----
- Special damage：-----
- Cardinal Condition：
  Disgusting, vomit, the stupor, the skin fever scalds, the position feeling barrier.

Article damage classification：-----

Composition / Information on Ingredients

English Name： Rechargeable Lithium Ion Battery Pack

Synonymous Name：

Hazardous Ingredients：

Chemical Name	CAS NO.	Concentration/ Concentration range	Classification and Hazard labeling
Lithium Cobalt Oxide	12190-79-3	30-45%	
Polyvinylidene Fluoride(PVDF)	24937-79-9	1-2.5%	
Aluminium	7429-90-5	9-12%	
Graphite	7782-42-5	12-18%	
Styrene-ButadieneRubber	61789-96-6	0.1-0.5%	
Carboxymethylcellulose	9000-11-7	0.1-0.5%	
Copper	7440-50-8	6-11%	
Nickel	7440-02-0	0.5-1.5%	
Lithium Hexafluorophosphate	21324-40-3	15-20%	

Others	-	3-6%	

Lithium equivalent content	1.77[g] for battery pack

First Aid Measures

Under normal conditions of use, the battery is hermetically sealed.

1. Ingestion：If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.

2. Skin Contact：If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

3. Eye Contact：If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.

4. Ingestion：If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

Fire Fighting Measures

- If fire or explosion occurs when battery are on charge， should shut off power to charger. In case of fire where lithium ion battery is present, flood the area with water. If any battery is burning, water may not extinguish them, but will cool the adjacent battery and control the spread of fire. CO_2， dry chemical, and foam extinguishers are preferred for small fires.

- extinguishers：
  water/CO_2/dry chemical/foam

Accidental Release Measures

- **personal protection**：
  1. Respiratory Protection： Not necessary under normal conditions.

  2. Eye Protection： Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

3. Gloves： Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery

- **Ventilation Requirements**： Not necessary under normal conditions
- Should depend on environmental protection stipulation recycle mode processing.

Handling and Storage

- Handling：
  Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery.
  Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include jumbled battery in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of battery in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery.

- Storage：
  If the Polymer Li-ion Rechargeable Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Polymer Li-ion Rechargeable Battery periodically. 3 months: -10℃~+40℃, 45 to 85%RH
  And recommended at 0℃~+35℃ for long period storage.
  The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more. Do not storage Polymer Li-ion Rechargeable Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.Keep out of reach of children. Do not expose Polymer Li-ion Rechargeable Battery to heat or fire. Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials.

Exposure controls

- ENGINEERING CONTROLS：-----

Control parameter		
Common chemical name/ General name	TLV-TWA	BEI
Lithium Cobaltic ($LiCoO_2$)	0.02mg/ m^3 (as cobalt)	-----
Aluminum	10mg/ m^3 (metal coarse particulate) 5mg/ m^3 (inflammable powder) 5mg/ m^3 (weld fume)	-----
Carbon (Natural graphite) (Artificial graphite)	2mg/ m^3 (inhalant coarse particulate)	-----
Copper	0.2mg/ m^3 (fume) 1.0mg/ m^3 (a coarse particulate , mist)	-----
Organic electrolyte	-----	-----

Physical and Chemical Properties

Physical state	(Solid)	(Solubility in water)	/
Cell Color	(Metallic color)	(Explosion limit)	/
Odor	(Odorless)	(Auto flammability)	/
Flashpoint	/	(Melting Point)	$LiCoO_2$ about 1130 C
Boiling Point	/	(Freezing Point)	/

Stability and Reactivity

- Stability：
  Stable under normal use
- Reactivity：
  Avoid contact with water and acids.

Toxicological Information

Under normal conditions of use, the battery is toxicological sealed. So void to open and damage battery directly

Ecological Information

If the battery is scrapped, it should be selected and disposed by professional company

Disposal Considerations

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

Transportation Information

The rechargeable lithium Ion battery pack meet all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3. The lithium battery pack comply with IATA DGR 60th edition lithium ion battery pack UN3480 and comply with Section IB of Packing Instruction of 965. Lithium battery label must be placed on the package when the statement is required.

Regulatory Information

(ACGIH)
(OSHA)
European Union (UN)
(ISO)

Other Information

- Reference : CSIP LI-ION POLYMER CELL BATTERY MSDS
- Made by：Joules Miles Co., Ltd.
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  TEL： 886-7-8157868 FAX： 886-7-8154982 www.jms.com.tw

Note: The reference data provide from supplier.