

SAFETY DATA SHEET

Product Name : 0.8W Li-ion battery Pack, extended duration, MultiRAE Series

Applicant : RAE Systems (Shanghai) Inc.

Address : No. 990 East Huiwang Road, Jiading District, Shanghai, China

Signed by Shanghai Outao Testing Technology Service Co., Ltd

Written by



Lei Li

Date: January 24th, 2018

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SAFETY DATA SHEET

Section 1 – Chemical Product and Company Identification

1.1 Product identifier	
Product name	0.8W Li-ion battery Pack, extended duration, MultiRAE Series
Model	M01-3055-000
Product description	Li-ion rechargeable battery
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Relevant identified uses	Li-ion rechargeable battery
Uses advised against	No data available
1.3 Details of the supplier of the SDS	
Company name	RAE Systems (Shanghai) Inc.
Address	No. 990 East Huiwang Road, Jiading District, Shanghai, China
Contact person	Yang Xiaojing
Tel	+86-21-67090791
Email	Xiaojing.Yang@Honeywell.com
1.4 Emergency telephone number	
Call the emergency number (24 hours): +86-21-67090791	

Section 2 – Hazards Identification

2.1 Classification of the substance or mixture	
Classification acc. To Regulation (EC) No 1272/2008/EC (CLP/GHS)	
Product definition: Mixture	
The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.	
See Section 16 for the full text of the H statements declared above.	
See Section 11 for more detailed information on health effects and symptoms.	
2.2 Label Elements Symbol(s)	
Signal Words	No signal word
Hazard Statement	PHYSICAL HAZARDS: Not classified as a physical hazard under CLP/GHS criteria.
	HEALTH HAZARDS: Not classified as an health hazard under CLP/GHS criteria.
	ENVIRONMENTAL HAZARDS: Not classified as an environmental hazard under CLP/GHS criteria.
GHS Precautionary Statements	
Prevention	Not applicable.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
2.3 Other hazard	
Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The rechargeable lithium-ion batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer.	
Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the	

battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns to skin and eyes.

Section 3 – Composition/Information on Ingredient

3.1 Mixture information

Ingredient name	CAS No.	EINECS	Weight %	REACH No.	Classification
Battery cell	Not assigned	Not assigned	57%	Not available	No classification
Circuit board	Not assigned	Not assigned	3%	Not available	No classification
Black glue	Not assigned	Not assigned	25.6%	Not available	No classification
Battery pack enclosure	Not assigned	Not assigned	13%	Not available	No classification
Battery temperature control board	Not assigned	Not assigned	0.3%	Not available	No classification
Battery protective board	Not assigned	Not assigned	0.1%	Not available	No classification
Wires	Not assigned	Not assigned	1%	Not available	No classification

3.2 Substance information

Not applicable

Section 4 – First Aid Measures

4.1 Description of first aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin contact	Get medical advice/attention if you feel unwell. Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If skin irritation or burn occurs: Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
Ingestion	Get medical advice/attention. Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Eye contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Potential acute health effects

Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Eye contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

4.3 Indication of the immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment

Section 5 – Fire Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

No data available

5.2 Special hazards arising from the substance or mixture

Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (> 150 °C), when damaged or abused (e.g., mechanical damage or electrical overcharge). Burning cells can ignite other batteries in close proximity.

5.3 Hazardous thermal decomposition products

Carbon monoxide, carbon dioxide, lithium oxides, hydrogen fluoride.

5.4 Advice for fire-fighters

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Keep containers cool by spraying with water. Eliminate all ignition sources if safe to do so. When extinguishing fire, be sure to wear personal protective equipment.

Section 6 – Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

As an immediate precautionary measure, isolate spill or leak area for at least 25 meters in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas.

Ventilate closed areas before entering.

Wear adequate personal protective equipment as indicated in Section 8.

6.2 Environmental precautions

Prevent material from contaminating soil and from entering sewers or waterways.

6.3 Methods and materials for containment and cleaning up

Stop the leak if safe to do so.

Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

Section 7 – Handling and Storage

7.1 Precautions for safe handling

Do not open, disassemble, crush or burn battery. Do not expose cell to temperatures outside the range of -20°C to 55°C.

7.2 Conditions for safe storage, including any incompatibilities

Store battery in a dry location. To minimize any adverse effects on battery performance it is recommended that the batteries be kept at room temperature (35°C +/- 20°C). Elevated temperatures can result in shortened cell life. Keep out of reach of children.

7.3 Specific end use(s)

Not available.

Section 8 – Exposure Controls, Personal Protection

8.1 Control parameters

Occupational exposure limits values: No data available

8.2 Exposure controls

Appropriate engineering controls:

Airborne exposures to hazardous substances are not expected when product is used for its intended purpose.

Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fume and vapor.

Personal protective equipment

Respiratory protection	Not necessary under normal conditions. Wear self-contained breathing apparatus (SCBA) if handling an open or leaking battery.
Hand protection	Not necessary under normal conditions. Wear neoprene or natural rubber gloves if handling an open or leaking battery.
Eye / Face protection	Not necessary under normal conditions. Wear safety glasses if handling an open or leaking battery.
Skin and body protection:	Not necessary under normal conditions. Wear protective clothing and boots if handling an open or leaking battery.

Environmental exposure controls:

Should not be released into the environment.

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Section 9 – Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical appearance(20°C)	Black solid
Odor	Odorless
Odor threshold	No data available
pH	No data available
Melting point/range	No data available
Boiling point/range	No data available
Flash Point	No data available
Explosion Limits	
Lower	No data available
Upper	No data available
Ignition Temperature	No data available
Vapour Pressure	No data available
Vapour Density	No data available
Density	No data available
Solubility	insoluble in water

9.2 Other information

Other physical-chemical data were not identified

Section 10 – Stability and Reactivity

10.1 Reactivity

No special reactivity has been reported.

10.2 Chemical Stability

This product is stable under normal conditions.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid exposing the battery to fire or temperatures above 80°C. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.

10.5 Incompatible materials

Do not immerse in seawater or other high conductivity liquids, strong oxidizers.

10.6 Hazardous decomposition products

This material may release toxic fumes if burned or exposed to fire. Breaching of the battery enclosure may lead to generation of hazardous fumes which may include extremely hazardous HF (hydrofluoric acid).

Section 11 – Toxicological Information

11.1 Toxicokinetics, metabolism and distribution

No data available

11.2 Information on toxicological effects

Acute toxicity No data available

Skin corrosion/irritation No data available

Serious eye No data available

damage/irritation

Respiratory or skin No data available

sensitization

Germ cell mutagenicity

This product is not reported to have any mutagenic effects.

CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction)

This product is not reported to have any carcinogenic effects.

STOT-single exposure and repeated exposure

This product is not reported to have any specific target organ repeat effects.

Aspiration Hazard

This product is not reported to have any aspiration hazard effects.

Section 12 – Ecological Information

12.1 Ecotoxicity No data available

12.2 Persistence/ degradability No data available

12.3 Bioaccumulative potential No data available

(BCF)

12.4 Mobility in soil No data available

12.5 Result of PBT and vPvB No data available

assessment

12.6 Other adverse effects No data available

Section 13 – Disposal Considerations

13.1 Material Disposal

Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

13.2 Container Disposal

Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

13.3 Local Legislation

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Hazard waste.

Section 14 – Transport Information

lithium-ion batteries are designed to comply with all applicable shipping regulations as prescribed by industry and legal standards which includes compliance with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods Regulations and applicable U.S. DOT regulations for the safe transport of lithium-ion batteries and the International Maritime Dangerous Goods Code. Each of the listed cells in Section 1 have passed the UN Manual of Tests and Criteria Part III Subsection 38.3, which is required by all of the directives listed above.

In the US, shipments of lithium ion batteries are classified as Class 9, UN3480, Packing Group II, by the U.S. Hazardous Materials Regulations (HMR). Packaging, markings and documentation requirements are defined in Title 49 of the Code of Federal Regulations (CFR), Section 173.185. of the U.S. HMR. Excepted cells and batteries are allowed to be transported within the US without Class 9 packaging and markings, but must conform to other requirements as stipulated in Special Provisions 188 and 189 in the 49 CFR Section 173.185 of the U.S. HMR.

International shipments of lithium ion cells and batteries are generally classified as Class 9, UN3480, Packing Group II, by the International Civil Aviation Organization (ICAO) and the International Maritime Dangerous Goods (IMDG) Code. Packaging, markings and documentation requirements are defined in the International Air Transport Association (IATA) Dangerous Goods Regulations (DGR) Packing Instructions 965 and Packing Instruction P903 of the IMDG Code.

Excepted cells and batteries are allowed to be transported internationally without Class 9 packaging and markings, but must conform to other requirements as stipulated in Packing Instructions 965 of the IATA DGR and Special Provision 188 under the IMDG Code.

Section 15 – Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

USA	All ingredients in the product are listed on the TSCA inventory.
EC Classification for the Substance/Preparation	This product is not classified as hazardous according to Regulation (EC) No. 1272/2008. Keep out of the reach of children.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: Xi, N

Risk Phrases

R 20/22	Harmful by inhalation and if swallowed
R 52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety Phrases

S 16	Keep away from sources of ignition - No smoking.
S 24/25	Avoid contact with skin and eyes
S 60	This material and/or its container must be disposed of as hazardous waste
S 61	Avoid release to the environment. Refer to special instructions / Safety data sheets

15.2 Chemical Safety Assessment

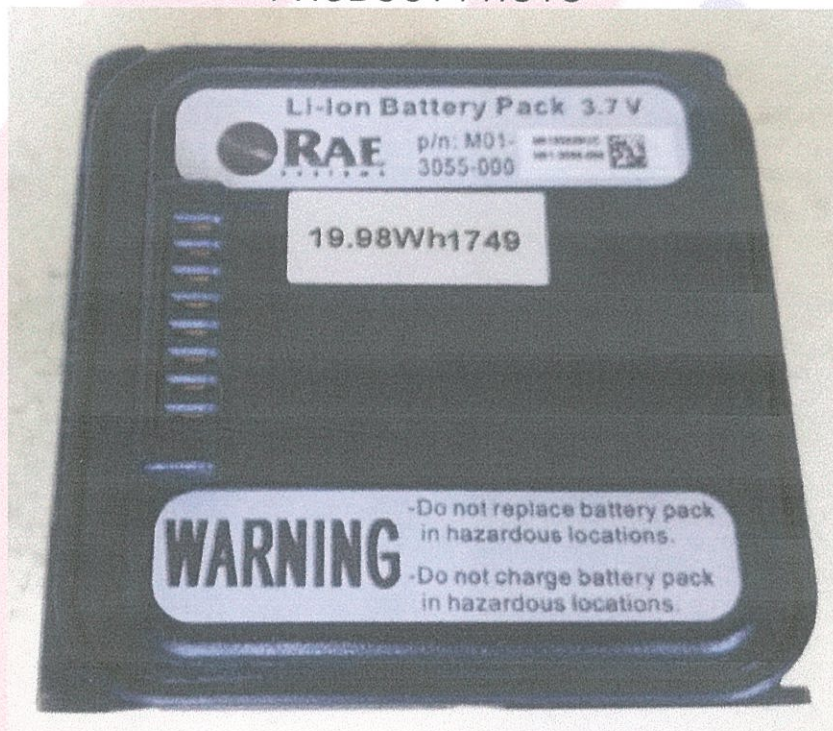
The mixture has undergone any safety assessment.

For details regulations you should contact the appropriate agency in your country.

Section 16 – Additional Information

SDS Creation Date: January 24th, 2018

This SDS was prepared sincerely on the basis of the information we could obtain, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. Products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

PRODUCT PHOTO**END OF REPORT**