Technical Data Sheet

Ryobi Lithium-Ion Battery Pack
Battery Voltage: 18V
Battery Capacity: 4Ah / 72Wh

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Lithium-Ion Battery — Rechargeable

Model Number: P197
Issue Date: July 2017

Techtronic Industries Power Equipment
1428 Pearman Dairy Road
Anderson, SC 29625

Company Phone Number:
(for Power Tools): 1-800-525-2579
(for Outdoor Products): 1-800-860-4050

Emergency Contact Number:
Chemtrec (United States only): 1-800-424-9300
(International): +1-703-741-5970

SECTION 2: HAZARDS IDENTIFICATION

Refer to battery cell SDS for more information.

No exposure to hazards during routine handling of product.

⚠ WARNING:

- To reduce the risk of injury, user must read operator's manual.
- Risk of fire and burns.
- Do not open, crush, heat above 50˚C, incinerate, or short terminals.
- Follow manufacturer's instructions.
- Use only with charger listed in operator's manual.
- Remove battery from tool when storing, changing attachments, or making adjustments.
- To reduce the risk of explosion and possible injury, do not place battery near fire or heat.
- Do not crush, drop, or damage battery pack.
- Do not use a battery pack that has been dropped or received a sharp blow. A damaged battery is subject to explosion. Properly dispose of a dropped or damaged battery immediately.
- Under extreme usage or temperature conditions, battery leakage may occur. If fluid comes in contact with your skin, wash immediately with soap and water. If fluid gets into your eyes, flush them with clean water for at least 10 minutes, then seek immediate medical attention. Following this rule will reduce the risk of serious personal injury.
- Battery cells and battery pack assembly will burn if incinerated.

SECTION 3: COMPOSITION/INFORMATION OF INGREDIENTS

Refer to battery cell SDS for more information.

SECTION 4: FIRST AID MEASURES

Refer to battery cell SDS for more information.

No exposure to hazards during routine handling of product.

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- Under extreme usage or temperature conditions, battery leakage may occur. If fluid comes in contact with your skin, wash immediately with soap and water. If fluid gets into your eyes, flush them with clean water for at least 10 minutes, then seek immediate medical attention. Following this rule will reduce the risk of serious personal injury.
- Battery cells and battery pack assembly will burn if incinerated.
- No exposure during routine handling of product. Risk of exposure occurs only if the battery is mechanically or electrically abused.
- No effect under routine handling and use to eyes, skin, or if inhaled. Ingestion is not likely, given the physical size and state of the cell. If swallowed, seek medical attention immediately.
- If exposure to internal materials within cell due to damaged outer casing, the following actions are recommended:

EYE CONTACT:

Flush with water for 10 minutes without rubbing and immediately seek medical attention.

SKIN CONTACT:

Wash area immediately with soap and water. If irritation continues, seek medical attention.

INHALATION:

Leave area immediately, move to fresh air, and seek medical attention.

INGESTION:

If swallowed, contact POISON CONTROL CENTER immediately.

SECTION 5: FIRE FIGHTING MEASURES

Refer to battery cell SDS for more information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

- Use standard industrial clothing in normal use.
- If handling large containers of cells, wear steel-toed footwear.

ENVIRONMENTAL PRECAUTIONS:

No special precautions necessary.

METHODS FOR CONTAINMENT:

- Transport container outdoors.
- Always consult and obey all international, federal, and local environmental laws.

METHODS FOR CLEANUP:

No data available

OTHER INFORMATION:

No data available

SECTION 7: HANDLING AND STORAGE

HANDLING:

- Use only approved charging equipment.
- Do not disassemble battery or battery pack.
- Do not puncture, crush, or dispose of in fire.

STORAGE:

To obtain the longest possible battery life, we suggest the following:

- Remove the battery pack from the charger once it is fully charged and ready for use.

For battery pack storage longer than 30 days:

- Store the battery pack where the temperature is below 80°f and away from moisture.
- Store battery packs in a 30%-50% charged condition.
- Every six months of storage, charge the pack as normal.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Refer to battery cell SDS for more information.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Battery pack consists of battery cells assembled in resin enclosure and is a solid odorless product that will burn if incinerated.

SECTION 10: STABILITY AND REACTIVITY

Refer to battery cell SDS for more information.

No exposure to hazards during routine handling of product.

⚠ WARNING:

- To reduce the risk of injury, user must read operator's manual.
- Risk of fire and burns.
- Do not open, crush, heat above 50˚C, incinerate, or short terminals.
- Follow manufacturer's instructions.
- Use only with charger listed in operator's manual.
- Remove battery from tool when storing, changing attachments, or making adjustments.
- To reduce the risk of explosion and possible injury, do not place battery near fire or heat.
- Do not crush, drop, or damage battery pack.
- Do not use a battery pack that has been dropped or received a sharp blow. A damaged battery is subject to explosion. Properly dispose of a dropped or damaged battery immediately.
- Under extreme usage or temperature conditions, battery leakage may occur. If fluid comes in contact with your skin, wash immediately with soap and water. If fluid gets into your eyes, flush them with clean water for at least 10 minutes, then seek immediate medical attention. Following this rule will reduce the risk of serious personal injury.
- Battery cells and battery pack assembly will burn if incinerated.

SECTION 11: TOXICOLOGY INFORMATION

Refer to battery cell SDS for more information.

No exposure to hazards during routine handling of product.

⚠ WARNING:

- To reduce the risk of injury, user must read operator's manual.
- Risk of fire and burns.
- Do not open, crush, heat above 50˚C, incinerate, or short terminals.
- Follow manufacturer's instructions.
- Use only with charger listed in operator's manual.
- Remove battery from tool when storing, changing attachments, or making adjustments.
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- Do not crush, drop, or damage battery pack.
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- Under extreme usage or temperature conditions, battery leakage may occur. If fluid comes in contact with your skin, wash immediately with soap and water. If fluid gets into your eyes, flush them with clean water for at least 10 minutes, then seek immediate medical attention. Following this rule will reduce the risk of serious personal injury.
- Battery cells and battery pack assembly will burn if incinerated.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

None in routine handling of product.

TOXICITY:

No data available

PERSISTENCE AND DEGRADABILITY (BIOPERSISTENCY & BIODEGRADABILITY):

None in routine handling of product.

POTENTIAL OF BIOACCUMULATION:

None in routine handling of product.

MOBILITY IN SOIL:

None in routine handling of product.

OTHER ADVERSE EFFECTS:

No data available

DISPOSAL:

Follow guidelines in Section 13.

SECTION 13: DISPOSAL CONSIDERATIONS

This product contains Lithium-ion batteries. Local, state or federal laws may prohibit disposal of batteries in ordinary trash. Consult your local waste authority for information regarding available recycling and/or disposal options.

DISPOSAL:

- Dispose in accordance with appropriate regulations.
- Always consult and obey all international, federal, provincial/state, and local hazardous waste disposal laws. Some jurisdictions require recycling of this spent product. Battery recycling is encouraged.
- Lithium-ion batteries are safe for disposal in the normal municipal waste stream since they are not defined by the federal government as hazardous waste. However, Lithium-ion batteries are recyclable.
- To preserve natural resources, please recycle or dispose of batteries properly.

⚠ WARNING:

- Upon removal, cover the battery pack's terminals with heavy-duty adhesive tape.
- Do not attempt to destroy or disassemble battery pack or remove any of its components.
- Batteries must be recycled or disposed of properly.
- Also, never touch both terminals with metal objects and/or body parts as short circuit may result.
- Keep away from children. Failure to comply with these warnings could result in fire and/or serious injury.
- This product does not contain mercury, cadmium or Lithium (metal).
- DO NOT INCINERATE battery cells.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT Hazardous Material Regulations (Re: Ground Transport)

Lithium-ion batteries under 101 watt hours or Lithium-ion batteries packed with equipment under 101 watt hours when packaged correctly are not subject to any regulations when traveling by ground in the continental U.S.

Canada Transport Dangerous Goods (Re: Ground Transport)

Lithium-ion batteries under 101 watt hours or Lithium-ion batteries packed with equipment under 101 watt hours when packaged correctly are not subject to any regulation when traveling by ground in Canada.

International Dangerous Goods Regulations (Re: Air, Sea, Ground Transport)

Lithium-ion batteries under 101 watt hours or Lithium-ion batteries under 101 watt hours packed with equipment are not subject to any regulation when packaged correctly when shipped by sea.

No more than (2) Lithium-ion batteries under 101 watt hours can be shipped in a box by air, and no more than 1 shipment can be sent to a consignee in a day. The package must contain a Red Bordered Lithium-ion label (ICAO) containing an emergency contact telephone number and a Cargo Air Craft only label.

For accessory batteries under 101 watt hours when shipped by air, Dangerous Goods declaration must be presented to the air forwarder and the shipment identified as 1B on the declaration. The following labels must be attached: DG9 diamond label, Cargo Aircraft Only label, UN3480 Lithium-ion batteries label (all 3 of those labels must be on the same side of the carton), and the Red Bordered Lithium-ion label (ICAO).

SECTION 15: REGULATORY INFORMATION

Compliant with, relevant transportation test requirements as described in the UN Manual of Tests & Criteria, Part III, Sub section 38.3.

CALIFORNIA PROPOSITION 65

⚠ WARNING:

This product may contain chemicals, including lead, known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

SECTION 16: OTHER INFORMATION

The information contained within this document is provided for your information only. In case of any discrepancy, the information provided in the battery cell Safety Data Sheet takes precedence over the information provided in the battery pack Technical Data Sheet.

Prepared by: Techtronic Industries Power Equipment

The batteries referenced herein are considered exempt articles and are not subject to the OSHA Hazard Communication Standard; therefore an SDS is not required. This sheet is being provided as a service to our customers.

The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. TECHTRONIC INDUSTRIES POWER EQUIPMENT makes no warranty, expressed or implied, regarding the accuracy of this data or the results to be obtained from the use thereto.

SONY
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1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima, 963-0531 Japan
Phone: +81-50-3807-3065 / Fax: +81-50-3807-3764

SAFETY DATA SHEET

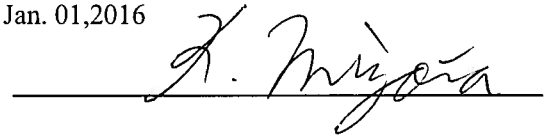
1. Product and Company Identification

Product Information

Product Category	: Lithium Ion Rechargeable Battery
Model Name	: US18650VTC4
Nominal Capacity	: 2100 mAh (7.6 Wh)
Rated Capacity	: 2000 mAh (7.2 Wh)
Average Operating Voltage	: 3.60 V

Company Identification

Supplier's Name	: Sony Energy Devices Corporation
Supplier's Address	: 1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima, 963-0531 Japan
Information Telephone	: +81-50-3807-3065
Date Prepared	: Jan. 01,2016
Signature of Paper	:



2. Hazard Identification

Class Name	: Not applicable for regulated class
Hazard	: It may cause heat generation or electrolyte leakage if battery terminals contact with other metals. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.
Toxicity	: Vapor generated from burning batteries, may make eyes, skin and throat irritate.

3. Composition / Information on Ingredients

IMPORTANT NOTE:

The battery should not be opened or burned since the following ingredients contained within the battery that could be harmful under some circumstance if exposed or misused.

The battery contains neither metallic lithium nor lithium alloy.

Cathode	: Lithium Nickel Cobalt Manganese Oxides	(active material)
	Polyvinylidene Fluoride	(binder)
	Carbon Black	(conductive material)
Anode	: Graphite	(active material)
	Styrene-butadiene rubber / Carboxymethyl cellulose sodium salt	(binder)
Electrolyte	: Organic Solvent	(non-aqueous liquid)
	Lithium Salt	
Others	: Heavy metals such as Mercury, Cadmium, Lead, and Chromium are not used in the battery.	
UN number	: UN3480	
Watt-hour rating	: 7.6 Wh / 7.2 Wh (Nominal / Rated)	

4. First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact	: Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing, and call a doctor. If appropriate procedures are not taken, this may cause an eye irritation.

Skin contact : Wash the contact areas off immediately with plenty of water and soap.
If appropriate procedures are not taken, this may cause sores on the skin.
Inhalation : Remove to fresh air immediately, and call a doctor.

5. Fire Fighting Measures

- Use specified extinguishers (gas, foam, powder) and extinguishing system under the Fire Defense Law.
- Since corrosive gas may be produced at the time of fire extinguishing, use an air inhalator when danger is predicted.
- Use a large amount of water as a supportive measure in order to get cooling effect if needed. (Indoor/outdoor fire hydrant)
- Carry away flammable materials immediately in case of fire.
- Move batteries to a safer place immediately in case of fire.

6. Accidental Release Measures

- Wipe off with dry cloth
- Keep away from fire
- Wear safety goggles, safety gloves as needed

7. Precautions for Safe Handling and Use

Storage : Store within the recommended limit of -20°C to 45°C (-4°F to 113°F), well-ventilated area. Do not expose to high temperature (60°C/140°F). Since short circuit can cause burn hazard or safety vent to open, do not store with metal jewelry, metal covered tables, or metal belt.
Handling : Do not disassemble, remodel, or solder. Do not short + and - terminals with a metal. Do not open the battery.
Charging : Charge within the limits of 0°C to 45°C (32°F to 113°F) temperature. Charge with specified charger designed for this battery.
Discharging : Discharge within the limits of -20°C to 60°C (-4 °F to 140°F) temperature.
Disposal : Dispose in accordance with applicable federal, state and local regulations.
Caution : Fire, Explosion, and Severe Burn Hazard. Do not Crush, Disassemble, Heat Above 100°C/212°F, or Incinerate.

8. Exposure Controls/Personal protection (In case electrolyte is leaked from battery)

Acceptable concentration : Not specified in ACGIH.
Facilities : Provide appropriate ventilation such as local ventilation system in the storage.
Protective clothing : Gas mask for organic gases, safety goggle, safety glove.

9. Physical and chemical Properties

Appearance : Lithium Ion Rechargeable Cells.
Average Operating Voltage : 3.60 V

10. Stability and Reactivity

External short-circuit, deformation by crush, high temperature (over 100°C) exposure of a battery cause generation of heat and ignition.

11. Toxicological Information

Acute toxicity : No information as a battery
Local effects : No information as a battery

12. Ecological Information

When exhausted battery is buried in the ground, corrosion may be caused on the outer case of battery and electrolyte may be oozed. There is no information on environmental influence.

13. Disposal considerations

When battery is disposed, isolate positive (+) and negative (-) terminals of the battery to avoid those terminals from touching each other. Batteries may be short-circuited when piled up or mixed with the other batteries in disorder. Dispose in accordance with applicable federal, state and local regulations

14. Transport information

- When a number of batteries are transported by ship, vehicle and railroad, avoid high temperature and dew condensation.
- Avoid transportation which may cause damage of package.
- Lithium ion batteries are not subject to dangerous goods regulation for the purpose of transportation by the International Maritime Dangerous Goods regulations(IMDG). For Lithium ion batteries, the Watt-hour rating is no more than 20Wh/cell and 100Wh/battery pack can be treated as "non-dangerous goods" by the United Nations Recommendations on the Transport of Dangerous Goods/Special Provision 188, provided that the products are prevented from being short-circuited with each other and are packaged in an appropriate condition which satisfies Packing Group II performance level.
- IATA (International Air Transport Association): Dangerous Goods Regulation
  Packing Instruction 965 (Lithium ion or lithium polymer cells and batteries without electronic equipment)

Section II requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh packed in quantities that within the allowance permitted in Section II, Table 965-II.

TABLE 965-II

Contents	Lithium ion cells and/or batteries with a Watt-hour rating of 2.7Wh or less	Lithium ion cells with a Watt-hour rating of more than 2.7Wh but not more than 20Wh	Lithium ion batteries with a Watt-hour rating of more than 2.7Wh but not more than 100Wh
Maximum number of cells/ batteries per package	No limit	8 cells	2 Batteries
Maximum net quantity per package	2.5 kg	N/A	N/A

Lithium ion cells and batteries meeting the requirements in this section are not subject to other additional requirements of these Regulations except for:

- each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;
- cells and batteries must be manufactured under a quality management program;
- for batteries, The Watt-hour rating must be marked on the outside of the battery case;
- Each package must be capable of withstanding a 1.2m drop test in any orientation without:
  -damage to cells or batteries contained therein;
  -shifting of the contents so as to allow battery to battery (or cell to cell) contact;
  -release of contents.
- Each package must be labeled with a lithium battery handling label.

Section IB requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh packed in quantities that exceed the allowance permitted in Section II, Table 965-II.
Quantities of lithium ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II must be assigned to Class 9 and are subject to all of the applicable provisions of Regulation.

Even classified as lithium batteries packed with equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 966 is applied.
Even classified as lithium batteries installed in equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 967 is applied.

15. Regulatory information

- IMDG Code: International Maritime Dangerous Goods (IMDG) Code 2014 Edition
- ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2015-2016 Edition
- IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 57th Edition

16. Other Information

The information contained within is provided for your information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, Sony Energy Devices Corporation MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON IT.