

Safety Data Sheet

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1. Product and Company Identification

Important Note: As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use. This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Material Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Commercial product name

See Appendix 17 Further Information for Model Names

Use of the substance/preparation

Lithium-Ion Rechargeable Battery Pack

Manufacturer

Simplo Technology Co.,Ltd.

Address

No 471 Sec 2 Pa Teh Rd Hu Kou 30348 Hsin Chu Hsien, Taiwan

Company/undertaking identification

1-800-424-9300 : US and Canada 1-703-527-3887 : International

2. Hazards Identification

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	SafeWork (Australia)
Not required with normal use.	0 0	Not classified as hazardous	Not applicable with normal use.	Not classified as hazardous
GHS Hazard Symbol	IATA	JIS (Japan)	Taiwan	China
Not applicable with normal use.	\$	Not classified as hazardous	Not classified as hazardous	Not classified as hazardous

2.1. Classification of the substance or mixture.



2.1.1. Preparation Hazards and Classification: The product is a Lithium ion cell or battery and is therefore classified as an article and is not hazardous when used according to the recommendations of the manufacturer. The hazard is associated with the contents of the cell or battery. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the cell or battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the cell or battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous.

2.1.2. Hazard Summary

Physical hazards: Not classified for physical hazards. **Health hazards:** Not classified for health hazards.

Environmental hazards: Not classified for hazards to the environment.

Specific hazards: Exposure to contents of an open or damaged cell or battery: contact with this

material will

cause burns to the skin, eyes and mucous membranes.

May cause sensitization by skin contact.

Main Symptoms: Symptoms include itching, burning, redness and tearing.

2.2. Other Hazards.

2.2.1. Appearance, Color and Odor: Solid object with no odor.

2.2.2. Primary Routes(s) of Exposure: These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell or pack is mechanically, thermally, electrically or physically abused to the point of compromising the enclosure.

If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

2.2.3. Potential Health Effect(s):

2.2.3.1. Acute (short term): see Section 8 for exposure controls.

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

Inhalation: Inhalation of materials from a sealed cell is not an expected route of exposure. Vapors or mists from a ruptured cell may cause respiratory irritation.

Ingestion: Swallowing of materials from a sealed cell is not an expected route of exposure. Swallowing the contents of an open cell can cause serious chemical burns to mouth, esophagus, and gastrointestinal tract.

Skin: Contact between the cell and skin will not cause any harm. Skin contact with the contents of an open cell can cause severe irritation or burns to the skin.

Eye: Contact between the cell and the eye will not cause any harm. Eye contact with the contents of an open cell can cause severe irritation or burns to the eye.

2.2.3.2. CHRONIC (long term): see Section 11 for additional toxicological data.

2.2.4. Medical Conditions Aggravated by Exposure: Not Available.

2.2.5. Interactions with other chemicals: Immersion in high conductivity liquids may cause corrosion and breaching of the cell or battery enclosure. The electrolyte solution inside of the cells may react with alkaline (basic) materials and present a flammability hazard.



2.2.6. Potential Environmental Effects: Not Available.

	P102: Keep out of reach of children.
Precautionary	P103: Read label prior to use.
Statement(s)	P202: Do not handle until all safety precautions have been read and understood.
Prevention	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking.
1 ic vention	P234: Keep only in original container.
	P254: Wash hands thoroughly after handling.
	P260: Do not breathe vapor or spray.
	P280: Wear protective gloves/protective clothing/eye protection/face protection.
	P301/330/331: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
	P303/361/353: IF ON SKIN (or hair): Remove/Take off immediately all
Response	contaminated clothing Rinse skin with water/shower.
(If cell/battery	P304/340: If INHALED: Remove victim to fresh air and keep at rest in a position
leaks)	comfortable for breathing.
Tours)	P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes.
	Remove contact lenses, if present and easy to do. Continue rinsing.
	P310: Immediately call a POISON CENTER or doctor/physician.
	P363: Wash contaminated clothing before reuse.
	P370: In case of fire: Use carbon dioxide, dry chemical or water extinguisher.
Storage	P402: Store in a dry place.
(Store as	P405: Store locked up.
indicated	P410: Protect from sunlight.
in Section 7)	
	P406: Store any spilled/leaking electrolyte material in a corrosive resistant
Disposal	container with a resistant inner liner.
2 15 p 5 5 4 1	P501: Dispose of batteries in accordance with applicable hazardous waste
	regulations.

3. Composition/information on ingredients

Hazardous components

	Chemical Name	CAS No.	*Mass range in cell (%)
Nickel compound	Nickelous oxide	1313-99-1	0-25
Manganese compound	Manganese dioxide	1313-13-9	0-25
Cobalt compound	Cobalt oxide	1307-96-6	4-50
	Lithium cobaltate	12190-79-3	4-30
Carbon	Carbon	7440-44-0	<30
Graphite	Graphite	7782-42-5	7-25
	1,3-butadiene polymer;		
Styrene-Butadiene-Rubber	2,5-Furandione, polymer	27288-99-9	<1
•	with 1,3-butadiene and		



新普科技股份有限公司 新世電子(常熟)有限公司 新普科技(重度)有限公司 新普電子(常熟)有限公司 Simplo Technology Co., Ltd. Simplo Technology(Changshu)Inc.

Simplo Technology(Chongqing)Inc. Huapu Technology(Chongshu)Inc.

	ethenylbenzene		
PVDF	Polyvinylidenfluoride	24937-79-9	<5
Aluminium	Al	7429-90-5	2-10
Copper	Cu	7440-50-8	10-30
Includes one or more of the following; Ethelyne Carbonate Diethyl Carbonate Dimethyl Carbonate Ethyl Methyl Carbonate Propylene Carbonate Ethyl methyl carbonate Ethyl methyl carbonate		96-49-1 105-58-8 616-38-6 623-53-0 108-32-7. 623-53-0	10-20
Electrolyte salt	Lithium hexafluorophosphate	21324-40-3	<5
Steel, Nickel, and inert components		Various	Balance

Because of the cell structure the dangerous ingredients will not be available if used properly. During charge process a lithium graphite intercalation phase is formed.

4. First Aid Measures

4.1. Description of first aid measures

The hazardous components of this cell or battery are contained within a sealed unit. The following measures are only applicable if exposure has occurred to components when a cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. The hazardous contents are caustic alkaline electrolytes contained in cells with lithium metal oxide cathodes, graphite and carbon anodes and Polyvinylidenfluoride binders.

Ingestion: Have victim rinse mouth thoroughly with water. Do Not Induce Vomiting. Quickly transport victim to an emergency care facility.

Eye: If eye contact with contents of an open cell occurs, immediately flush the contaminated eye(s) with water. Quickly transport victim to an emergency care facility.

Skin Contact: Immediately flush with water. If irritation or pain persists, seek medical attention. **Inhalation:** Remove the patient from exposure into fresh air, seek medical attention.

Protection for first

Aiders: Do not enter corrosive vapor contaminated areas without a respirator or Self Contained Breathing

Apparatus. Wear adequate personal protective equipment as indicated in Section 8.

First aid facilities: Eye wash bottle, fountain, safety showers or at least a source of running water are required in the area where the product is used.

4.2 Most important symptoms & effects, acute & delayed, caused by exposure:

ACUTE: The contents of the battery are rated as corrosive. Ingestion of the electrolyte could lead to severe gastrointestinal tract irritation with nausea, vomiting and potentially burns. Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain,



burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing. Eye contact may lead to severe eye irritation or in worst case scenario irreversible damage and possible eye burns. Skin contact may lead to irritation and possible skin burns.

CHRONIC: Skin contact may aggravate/exacerbate existing skin conditions, such as dermatitis. Chronic inhalation may lead to the same symptoms as listed for acute inhalation above.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to doctor: Treat symptomatically if the person comes into contact with the corrosive electrolyte liquid contents of a damaged battery.

5. Fire Fighting Measures

5.1 Extinguishing media

Extinguishing Media: Use suitable extinguishing media

Firefighting Equipment: Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

5.2 Special hazards arising from the chemical

May form hydrofluoric acid if electrolyte comes into contact with water.

In case of fire, the formation of the following flue gases cannot be excluded:

Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.

5.3 Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Additional information

If possible, remove cell(s) from fire fighting area. If heated above 125°C, cell(s) can explode/vent. Cell is not flammable but internal organic material will burn if the cell is incinerated.

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 (75 feet) 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

Absorb spilled material with non-reactive absorbent such as vermiculite, clay or earth. Prevent from migration into soil, sewers and natural waterways – inform local authorities if this occurs.

6.3. Methods and material for containment and cleaning up

Evacuate spill area immediately and remove sources of ignition. Do NOT touch spilled material. Cleanup personnel must be trained in the safe handling of this product. Spills may be absorbed on non-reactive absorbents such as vermiculite. Place cells or batteries into individual plastic bags and then place into appropriate containers and close tightly for disposal. Ensure that cleanup procedures do not expose spilled material to any moisture. Immediately transport closed containers outside. Lined steel drums are suitable for storage of damaged cells or batteries until proper disposal can be arranged.

7. Handling and Storage

7.1. Handling



Advice on safe handling

Avoid short circuiting the cell. Avoid mechanical damage of the cell. Do not open or disassemble. Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

7.2.Storage

Requirements for storage rooms and vessels

Storage at room temperature (approx. 20°C) at approx. 20~60% of the nominal capacity (OCV approx. 3.6 - 3.9 V/cell). Keep in closed original container.

8. Exposure controls/personal protection Exposure limit values Exposure limits

8.1. Exposure Control Measures

- **8.1.1. Exposure Limit Values:** Airborne exposures to hazardous substances are not expected when the cells or batteries are used for their intended purposes. Exposure standards are not applicable to the sealed articles.
- **8.1.2. Biological Monitoring:** Not applicable.
- **8.1.3. Control Banding:** Not applicable.
- **8.1.4. Recommended monitoring procedures**: Follow standard monitoring procedures.
- **8.1.5. Derived no-effect level (DNEL):** Not applicable.
- 8.1.6. Derived minimal effect level (DMEL): Not applicable.
- **8.1.7. Predicted no-effect concentrations (PNECs):** Not applicable.

8.2. Engineering Controls

8.2.1. Engineering Controls: Special ventilation is not required when using these products in normal use scenarios Ventilation is required if there is leakage from the cell or battery.

8.2.2. Individual Protection Measures

- **8.2.2.1. Eye and Face protection:** Eye protection is not required when handling cells or batteries during normal use Wear safety glasses/goggles if handling a leaking or ruptured cell or battery.
- **8.2.2.2. Skin (Hand) protection:** Hand protection is not required when handling the cell or battery during normal use PVC gloves are recommended when dealing with a leaking or ruptured cell or battery.
- **8.2.2.3. Skin (clothing) protection:** Skin protection is not required when handling the cell or battery during normal use. Wear long sleeved clothing to avoid skin contact if handling a leaking or ruptured cell or battery. Soiled clothing should be washed with detergent prior to re-use.
- **8.2.2.4. Respiratory protection:** During routine operation, a respirator is not required. However, if dealing with an electrolyte leakage and irritating vapors are generated, an approved half face inorganic vapor and gas/acid/particulate respirator is required.
- **8.2.2.5. Thermal Protection:** Not applicable.
- **8.2.2.6. Other Protective Equipment:** Have a safety shower or eye wash station readily available
- **8.2.3. Hygiene Measures:** Do not eat, drink or smoke in work areas. Avoid storing food, drink or tobacco near the product. Practice and maintain good housekeeping.
- **8.2.4. Environmental exposure controls:** Avoid release to the environment.



Respiratory Protection	Hand Protection	Eye Protection	Other
			The state of the s
In all fire situations, use self- contained breathing apparatus.	In the event of leaking or ruptured cells or batteries, wear gloves.	Safety glasses are recommended in case of leaking or ruptured cells or batteries.	In the event of leaking or ruptured cells or batteries, wear protective clothing.

9. Physical and Chemical Properties

Appearance

Form: Solid Color: Various Odor: Odorless

Important health, safety and environmental information

Test method

pHValue: n.a.
Flash point: n.a
Lower explosion limits: n.a.
Vapour pressure: n.a.
Density: n.a.
Water solubility: Insoluble
Ignition temperature: n.a.

10. Stability and Reactivity USA, EU

Stability: Stable

Conditions to avoid: Keep away from open flames, hot surfaces and sources of ignition. Do not puncture, crush or incinerate.

Materials to avoid: No materials to be especially mentioned.

Hazardous decomposition products: In case of open cells, there is the possibility of hydrofluoric acid and carbon monoxide release.

Possibility of Hazardous Reactions: Will not occur

Additional information: No decomposition if stored and applied as directed.

11. Toxicological Information

11.1. Information on toxicological effects:

The hazardous components of the cell or battery are contained within a sealed unit. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the cell or battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the battery leaks, is exposed to high temperature or is mechanically, electrically or physically abused/damaged.

The following toxicology data is in respect to if a person comes into contact with the electrolyte.



11.2. Acute Toxicity:

- **11.2.1. Swallowed:** The electrolyte contained within the cell or battery is a corrosive liquid. Ingestion of this electrolyte would be harmful. Swallowing may result in nausea, vomiting, diarrhea, abdominal pain and chemical burns to the gastrointestinal tract. During normal usage ingestion should not be a means of exposure.
- **11.2.2.** Eye: The electrolyte contained within the cell or battery is a corrosive liquid and it is expected that it would cause irreversible damage to the eyes. Contact may cause corneal burns. Effects may be slow to heal after eye contact. Correct handling procedures incorporating appropriate eye protection should minimize the risk of eye irritation.
- **11.2.3. Skin:** The electrolyte contained within the cell or battery is a corrosive liquid and it is expected that it would cause skin burns or severe irritation to the skin if not washed off immediately. Correct handling procedures should minimize the risk of skin irritation. People with pre-existing skin conditions, such as dermatitis, should take extreme care so as not to exacerbate the condition.
- **11.2.4. Inhaled:** Inhalation of vapors from a leaking cell or battery is expected to cause severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing.
- **11.3. Skin Corrosion/Irritation:** The electrolyte contained within the cell or battery is classified as a corrosive liquid and is expected to exhibit Dermal Corrosivity/Irritation.
- **11.4. Serious Eye Damage/Irritation:** The electrolyte contained within the cell or battery is classified as a corrosive liquid and is expected to exhibit serious Damage/Corrosivity.
- **11.5. Respiratory or Skin Sensitization:** The electrolyte contained within the cell or battery is not expected to be a skin sensitizer according to OECD test 406, based on the available data and the known hazards of the components. The electrolyte contained within the battery is not expected to be a respiratory tract sensitizer, based on the available data and the known hazards of the components.
- **11.6. Germ Cell Mutagenicity:** The electrolyte contained within the cell or battery is not expected to be mutagenic according to test such as OECD tests 471, 475, 476, 478 and 479, based on the available data and the known hazards of the components.
- **11.7. Carcinogenicity:** The electrolyte contained within the cell or battery is not expected to be a carcinogen. The cathode contains Cobalt and Nickel components. These components are classified as IARC 2B possibly carcinogenic to humans, however they do not pose a threat when contained in the cell or battery sealed unit.
- **11.8. Reproductive Toxicity:** The electrolyte contained within the cell or battery is not expected to be a reproductive hazard according to test such as OECD tests 414 and 421, based on the available data and the known hazards of the components.
- **11.9. Specific Target Organ Toxicity (STOT) Single Exposure:** The electrolyte contained within the cell or battery is corrosive and is expect to cause respiratory irritation by inhalation. Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing.
- **11.10. Specific Target Organ Toxicity (STOT) Repeated Exposure:** The cells or batteries are not expected to cause organ damage from prolonged or repeated exposure according to tests such as OECD tests 410 and 412, based on the available data and the known hazards of the components.
- 11.11. Aspiration Hazard: The cells or batteries are not classified as an aspiration hazard, based on the



available data and the known hazards of the components. However, due to the corrosive nature of the product if swallowed, do NOT induce vomiting. If vomiting has occurred after ingestion the person should be observed to ensure that aspiration into the lungs has not occurred and assessed for chemical burns to the gastrointestinal and respiratory tracts.

12. Ecological Information

Further information

Ecological injuries are not known or expected under normal use. Do not flush into surface water or sanitary sewer system.

13. Disposal Considerations

Advice on disposal

For recycling consult manufacturer.

Contaminated packaging

Disposal in accordance with local regulations.

14. Transport Information

With regard to transport, the following regulations are cited and considered:

- UN. 3480
- UN proper shipping name: Lithium Ion Batteries.
- Transport hazard class: 9
- The International Civil Aviation Organization (ICAO) Technical Instructions(2017-2018Edition)
- The International Air Transport Association (IATA) Dangerous Goods Regulations, Packing Instruction 965, Section IB or II (59th Edition, 2018)
- The International Maritime Dangerous Goods (IMDG) Code (2016 Edition), [Special provision 188]
- US Hazardous Materials Regulations (HMR) pursuant to a final rule issued by RSPA (Part 49 CFR Sections 100-185)
- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries, Revision 3, Amendment 1 or any subsequent revision and amendment applicable at the date of the type

If those lithium-ion batteries are packed with or contained in an equipment, then it is the responsibility of the shipper to ensure that the consignment are packed in compliance to the latest edition of the IATA Dangerous Goods Regulations section II of either Packing Instruction 966 or 967 in order for that consignment to be declared as NOT RESTRICTED (non-hazardous/non-Dangerous). If those lithium-ion batteries are packed with or contained in an equipment, UN No. is UN3481

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1-T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria.

Test results of the UN Recommendation on the Transport of Dangerous Goods

Manual of Test and Criteria (38.3 Lithium battery)		Test Results	Remark
No	Test item		



T1	Altitude Simulation	Pass	
T2	Thermal Test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External Short Circuit	Pass	
T6	Impact/Crush	Pass	
T7	Overcharge	Pass	
T8	Forced Discharge	Pass	

15. Regulatory Information

Canadian Federal Regulations:

These products have been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS Classification: Not Controlled, manufactured article.

New Substance Notification Regulations: Lithium hexafluorophosphate is listed on the

Non-Domestic Substance List (NDSL). All other ingredients in the product are listed, as required, on Canada's Domestic Substances List (DSL).

National Pollutant Release Inventory (NPRI) Substances: These products do not contain any NPRI chemicals.

United States Federal and State Regulations:

TSCA Status: All ingredients in these products are listed on the TSCA inventory.

OSHA: These products do not meet criteria as per Part 1910.1200, manufactured article.

SARA EPA Title III: None.

Sec. 302/304: None.Sec. 311/312: None.Sec. 313: None.CERCLA RQ: None.

Australia and New Zealand

SUSMP: Not applicable

AICS: All ingredients are on the AICS list. HSNO Approval number: Not applicable HSNO Group Title: Not applicable

NOHSC:10008 Risk Phrases: R34 - Causes Burns.

NOHSC:1008 Safety Phrases:

S1 – Keep locked up.

S2 – Keep out of reach of children.

S23 – Do not breathe vapor.

S24/25 – Avoid contact with skin and eyes.

S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27/28 – After contact with skin, take off immediately all contaminated clothing and wash immediately with plenty of water.

S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.

S56 – Dispose of this material and its container at hazardous waste or special waste collection point.

S62 – If swallowed, DO NOT induce vomiting: seek medical advice immediately and show this container or label.

S64 – If swallowed, rinse mouth with water (Only if the person is conscious).

EC Classification for the Substance/Preparation:



These products are not classified as hazardous according to Regulation (EC) No. 1272/2008. Keep out of the reach of children.

EU Restrictions on use:

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended: Aluminium (CAS 7429-90-5)

Other EU Regulations

This Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Japanese Regulations

Japanese Industrial Standards (JIS) JIS Z 7253:2012 Waste disposal and public cleaning law Law for Promotion of Effective Utilization of Resources

Taiwanese Regulations

Regulation of Labelling and Hazard Communication of Dangerous and Harmful Materials: Labeling requirements and other relevant provision of chemicals, this product is not classified as dangerous goods. Toxic Chemicals Substance Control Law: Not Listed.

CNS 1030016 Safety of primary and secondary lithium cells and batteries during transport.

Chinese Regulations

General Rule for Classification and Hazard Communication of Chemicals (GB 13690-2009):

Specifies the classification, labeling and hazard communication of chemicals in compliance with the GHS standard for chemical production sites and labeling of consumer goods.

General Rule for Preparation of Precautionary Labels for Chemicals (GB 15258-2009): Specifies the relevant application methods of precautionary labels for chemicals.

Safety Data Sheet for Chemical Products Content and Order of Sections (GB/T 16483-2008)

16. Other Information

Hazardous Materials Information Label (HMIS)

Health: 0

Flammability: 0 Physical Hazard: 0

NFPA Hazard Ratings

Health: 0

Flammability: 0 Reactivity: 0 Unique Hazard:

Further Information

Data of sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge. This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations. "(n.a. = not applicable; n.d. = not determined)"

The data for the hazardous ingredients were taken respectively from the last version of the



sub-contractor's safety data sheet.

17. Appendix

Further Information

Model Name	Dell Part#	Nominal Voltage	Rated Capacity	Wh Rating
VJXMC	RRNJ1	14.8V	2700mAh	40Wh
VV0NF	WGCW6	11.1V	5700mAh	65Wh
N5YH9	45HHN	11.1V	8550mAh	97Wh
8858X	P8TC7	11.1V	4300mAh	48Wh
TKN25	TRDF3	14.8V	3260mAh	49Wh
BTYAVG1	FCPW3	14.8V	6270mAh	96Wh
7КЈТН	J6PX6	3.7V	4245mAh	16Wh
M457P	N531P	11.1V	4940mAh	56Wh
J60J5	MC34Y	7.6V	7080mAh	55Wh
74XCR	VXGP6	3.7V	4960mAh	18Wh
4GVGH	1P6KD	11.4V	7260mAh	84Wh
K81RP	CMMP3	3.7V	5780mAh	21Wh
НН8Ј0	WXR8J	3.8V	5190mAh	19.5Wh
7VKV9	9TV5X	7.6V	4020mAh	30Wh
J1KND	8NH55	11.1V	4300mAh	48Wh
9T48V	YXVK2	11.1V	8100mAh	90Wh
CGMN2	NYCRP	11.1V	4452mAh	50Wh
D2VF9	PXR51	11.1V	3840mAh	43Wh
R7PND	HPNYM	11.1V	8000mAh	87Wh
R7PND	VG2VT	11.1V	8000mAh	87Wh
XCNR3	WY7CG	7.6V	4500mAh	34Wh
P63NY	N3KPR	7.6V	5440mAh	43Wh
4DV4C	63FK6	14.8V	4522mAh	69Wh
ТМ9НР	J84W0	7.4V	2750mAh	20Wh
7FF1K	R8R6F	11.1V	2803mAh	32Wh
RFJMW	Y61CV	11.1V	5700mAh 5800mAh	65Wh
RFJMW	CPXG0	11.1V	5700mAh 5800mAh	65Wh
PRRRF	8WXJ3	14.8V	2660mAh	40Wh
T54FJ	MKD62	11.1V	5320mAh 5400mAh	60Wh
T54FJ	2MV3R	11.1V	5320mAh 5400mAh	60Wh



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M5Y0X	P6YD6	11.1V	8550mAh	97Wh
M5Y0X	5F1R5	11.1V	8550mAh	97Wh
CF623	WN979	11.1V	4940mAh	56Wh
DF192	MM156	11.1V	7410mAh	85Wh
N71FM	GXMW9	11.1V	5700mAh 5800mAh	65Wh
N71FM	FYTVN	11.1V	5700mAh 5800mAh	65Wh
FJJ4W	4HJXX	11.1V	8550mAh	97Wh
FJJ4W	WFDW7	11.1V	8550mAh	97Wh
90V7W	JHXPY	7.6V	7435mAh	56Wh
JD25G	RWT1R	7.4V	6930mAh	52Wh
JD25G	0N7T6	7.4V	6930mAh	52Wh
H6PR0	YJ31R	3.7V	2485mAh	9Wh
191YN	2F3W1	14.8V	6000mAh	92Wh
6JHDV	5046J	14.8V	6000mAh	92Wh
WD52H	KWFFN	7.4V	6000mAh 5880mAh	45Wh
GHT4X	NTC8R	7.4V	5440mAh	42Wh
34GKR	909H5	7.4V	6200mAh 6280mAh	47Wh
VFV59	FC2J8	7.4V	7140mAh	52Wh
3RNFD	K8J43	7.4V	7340mAh	54Wh
TK330	TK362	11.1V	5100mAh	56Wh
MT264	KM905	11.1V	7410mAh	85Wh
RYXXH	5TFCY	11.1V	3440mAh 3420mAh	38Wh
RYXXH	VVXTW	11.1V	3440mAh 3420mAh	38Wh
G5M10	YM3TC	7.4V	6880mAh	51Wh
G5M10	F5WW5	7.4V	6880mAh 6820mAh	51Wh
G5M10	WYJC2	7.4V	6880mAh 6820mAh	51Wh
R0TMP	FDX0T	7.6V	8180mAh	62Wh
M5Y1K	VN3N0	14.8V	2700mAh	40Wh
VHR5P	XRHWG	7.6V	4500mAh 4540mAh	35Wh
1MCXM	G3JJT	7.4V	3620mAh 3760mAh	28Wh
2H2G4	TXJ69	7.4V	4980mAh	38Wh



HXFHF	VT26R	7.4V	4855mAh	36Wh
KD186	YD120	11.1V	4940mAh	56Wh
JV1R3	1NGTN	11.1V	2150mAh	24Wh
7WMM7	RTY89	7.4V	3760mAh 3620mAh	28Wh
R3026	P8F45	11.1V	5400mAh	60Wh
WW116	FT079	11.1V	4940mAh	56Wh
7XNTR	FH8RW	7.4	3420mAh	26Wh
XX327	XPH7N	11.1V	5400mAh	60Wh
N887N	J037N	11.1V	5400mAh	60Wh
KJ321	UJ499	11.1V	8550mAh	97Wh
J79X4	FN3PT	11.1V	5300mAh	58Wh
NHXVW	XV2VV	11.1V	8000mAh	87Wh
NHXVW	9F77K	11.1V	8000mAh	87Wh
4XKN5	09FN4	11.1V	5700mAh	65Wh
4XKN5	5XT3V	11.1V	5700mAh	65Wh
X8VWF	VCWGN	11.1V	8550mAh	97Wh
X8VWF	W11CK	11.1V	8550mAh	97Wh
CJ2K1	80D45	11.1V	5700mAh	65Wh
DKNKD	W11Y7	11.1V	8550mAh	97Wh
TRHFF	1WWHW	11.1V	3800mAh 3840mAh	43Wh
TRHFF	7P3X9	11.1V	4040mAh 3840mAh	43Wh
0PD19	58DP4	7.4V	7410mAh	58Wh
0PD19	R77WV	7.4V	7410mAh	58Wh
G05YJ	Y3PN0	11.1V	6000mAh	69Wh
ХЗРН0	MJMF6	11.4V	5960mAh	67Wh
9MGCD	XMFY3	7.4V	4220mAh	32Wh
F079N	N976R	11.1V	2550mAh 2700mAh	28Wh
H7XW1	HXHFF	14.8V	2900mAh	44Wh
268X5	M0P7P	11.1V	5800mAh	65Wh
MR90Y	YGMTN	11.1V	5700mAh	65Wh
MR90Y	4DMNG	11.1V	5700mAh	65Wh
XCMRD	FW1MN	14.8V	2660mAh 2700mAh	40Wh
357F9	71JF4	11.4V	6400mAh	74Wh
0HTR7	NMV5C	14.8V	4200mAh	64Wh



		ridapu reenn	lology(Changshu).	1
NGGX5	JY8D6	11.4V	4090mAh	47Wh
9KY50	7V69Y	7.6V	8180mAh	62Wh
WJ5R2	4F5YV	11.4V	7260mAh	84Wh
FWRM8	1XP35	7.4V	3850mAh	30Wh
FR463	NU209	3.7V	1800mAh	7Wh
W828J	X463J	3.7V	1800mAh	7Wh
M164C	GC9R0	3.7V	1800mAh	7Wh
PT6V8	T7YJR	14.8V	4160mAh	63Wh
JKVC5	FH4HR	11.1V	4300mAh	48Wh
W1193	DR9F8	11.1V	5240mAh	60Wh
W1193	ND8CG	11.1V	5240mAh	60Wh
U5209	7P9T2	11.1V	8100mAh	81Wh
2F8K3	KJ2PX	14.8V	5700mAh	86Wh
8M039	P267P	11.1V	8400mAh	90Wh
0JV6J	8NWF3	7.6V	4013mAh	32Wh
YFDF9	HGJW8	11.1V	5700mAh	65Wh
YFDF9	H2F7D	11.1V	5700mAh	65Wh
4M529	F8TTW	11.1V	7860mAh	90Wh
W478P	U128K	11.1V	8400mAh	90Wh
T1G6P	NTG4J	11.1V	2774mAh	30Wh
N3X1D	HTX4D	11.1V	5700mAh 5800mAh	65Wh
N3X1D	2GWN5	11.1V	5700mAh	65Wh
71R31	CRT6P	11.1V	8550mAh	97Wh
71R31	R1XG4	11.1V	8550mAh	97Wh
3K4T8	G2CGH	11.1V	5400mAh	60Wh
F287H	F286H	11.1V	4300mAh	48Wh
8WP5J	69Y4H	3.7V	8720mAh	32Wh
TKV2V	YM5H6	11.1V	4300mAh	48Wh
GFKG3	VN25R	7.4V	4220mAh	32Wh
X284G	Y823G	11.1V	4300mAh	48Wh
C4K9V	WV7G0	7.4V	7440mAh	55Wh
Y9N00	489XN	7.4V	6071mAh	47Wh
JWPHF	R4CN5	11.1V	4840mAh	56Wh
T0TRM	Н76МҮ	11.1V	5180mAh	61Wh
245RR	7D1WJ	11.1V	7810mAh	91Wh
VH748	TWRRK	11.1V	4240mAh	51.2Wh
PC764	KP433	11.1V	4940mAh	56Wh



	-	ruapu reem	iology(Changshu)i	iic.
PC764	GD775	11.1V	5200mAh	56Wh
TC030	DU139	11.1V	7410mAh	85Wh
T118C	G280C	14.8V	5000mAh	74Wh
T116C	G274C	11.1V	7500mAh	85Wh
T3NT1	04GHF	11.1V	5415mAh	65Wh
T3NT1	8PWD5	11.1V	5415mAh 5800mAh	65Wh
FV993	RY6WH	11.1V	8700mAh	97Wh
FV993	FVWT4	11.1V	8700mAh	97Wh
BTYV0Y1	5WP5W	11.1V	8100mAh	90Wh
F079N	0R271	11.1V	2550mAh 2700mAh	28Wh
G038N	4H636	11.1V	5320mAh	56Wh
50TKN	93G7X	14.8V	2700mAh	40Wh
7FJ92	TXWRR	11.1V	4840mAh	56Wh
GRNX5	7W5X0	14.8V	5400mAh	80Wh
04D3C	R5PJR	11.1V	7695mAh	90Wh
N71FM	J5MXY/MT40R	11.1V	6000mAh	65Wh
FJJ4W	GP45C/WD6D1	11.1V	9000mAh	97Wh
XCNR3	WY7CG	7.6V	4250mAh	34Wh
P63NY	N3KPR	7.6V	5381mAh	43Wh
WDX0R	3CRH3	11.4V	3500mAh	42Wh
ТМ9НР	8K1VJ	7.4V	2750mAh	20Wh
N71FM	J5MXY	11.1V	5700mAh 5800mAh	65W
FJJ4W	GP45C	11.1V	8550mAh	97Wh
PRRRF	CC6N8	14.8V	2660mAh	40Wh
PRRRF	59WNP	14.8V	2660mAh	40Wh
T54FJ	5G67C	11.1V	5320mAh	60Wh
T54FJ	HCD9H	11.1V	5320mAh	60Wh
M5Y0X	9KN44	11.1V	8550mAh	97Wh
M5Y0X	N4FJ5	11.1V	8550mAh	97Wh
NHXVW	XV2VV	11.1V	8000mAh	87Wh
NHXVW	9F77K	11.1V	8000mAh	87Wh
FRR0G	HGKH0	11.1V	5130mAh	60Wh
FRR0G	RCG54	11.1V	5130mAh	60Wh
PG6RC	TN1K5	11.1V	5320mAh	60Wh
PG6RC	41YXC	11.1V	5320mAh	60Wh



FV993	JHYP2	11.1V	8700mAh	97Wh
FV993	K4RDX	11.1V	8700mAh	97Wh
BTYAVG1	FCPW3	14.8V	6270mAh	96Wh
C1D6H	7C14D	11.1V	4860mAh	54Wh
G3399	G3399	3.7V	1035mAh	37Wh
XYWV6	D2P7C	11.1V	2800mAh	30WH
7FF1K	K94X6	11.1V	2803mAh	32WH
J79X4	GYKF8	11.1V	5300mAh	58Wh
PRRRF	HNR8G	14.8V	2660mAh	40WH
R7PND	HPNYM	11.1V	8000mAh	87Wh
R7PND	VG2VT	11.1V	8000mAh	87Wh
4RXFK	FFK56	14.8V	4600mAh	69 Wh
8858X	P8TC7	11.1V	4300mAh	48wh
TKN25	TRDF3	14.8V	3260mAh	49wh
2NJNF	8JVDG	11.1V	3800mAh	44wh
FWRM8	YH7DR	7.4V	3850mAh	30wh
427TY	NGH7M	3.7V	8100 mAh	29wh
0WGKH	Y50C5	7.4V	3850mAh	30wh
RV8MP	4337M	11.1V	3800mAh	44wh
RV8MP	935TH	11.1V	3800mAh	44wh
GVD76	9C26T	11.1V	2820mAh	31wh
GVD76	JG20C	11.1V	2820mAh	31wh
PFXCR	MGH81	11.1V	3090mAh	34wh
PFXCR	C8GC5	11.1V	3090mAh	34wh
F38HT	WVG8T	7.4V	6130mAh	45wh
F38HT	J7WX3	7.4V	6130mAh	45wh
DGGGT	GF5CV	7.4V	5540mAh	40wh
PPNPH	Y880Y	7.4V	7700mAh	60wh
PPNPH	D1DCD	7.4V	7700mAh	60wh
5KG27	C4MF8	7.4V	7840mAh	58wh
GC3J0	J1YCJ	3.7V	4290mAh	16wh
K185W	GN7V6	14.8V	3200mAh	47wh
6MT4T	7V69Y	7.6V	8330mAh	60wh
PW23Y	TP1GT	7.6V	8050mAh	60wh
TDW5P	V9XD7	15.2V	4960mAh	76wh
44T2R	HF25D	15.2V	4560mAh	68wh
9NJM1	MG2YH	11.4V	9120mAh	99wh



		-		
NNF1C	HMPFH	7.6V	5940mAh	46wh
93FTF	D4CMT	11.4V	4254mAh	51Wh
GJKNX	GD1JP	7.6V	8500mAh	68Wh
GJKNX	5GJVW	7.6V	8500mAh	68Wh
VG93N	WFWKK	11.4V	7666mAh	92Wh
6GTPY	GPM03	11.4V	8333mAh	97Wh
1WND8	JT90P	11.4V	2622mAh	31.5Wh
J0PGR	FTH6F	7.6V	5250mAh	42Wh
J0PGR	NYPKP	7.6V	5250mAh	42Wh
V1P4C	FMXMT	7.6V	7000mAh	56Wh
DJ1J0	PGFX4	11.4V	3500mAh	42Wh
F3YGT	DM3WC	7.6V	7500mAh	60Wh
F3YGT	DWX9J	7.6V	7500mAh	60Wh
71TG4	X49C1	11.4V	3745mAh	45Wh
K5XWW	N18GG	7.6V	7500mAh	60Wh
K5XWW	3MVYT	7.6V	7500mAh	60Wh
YX0XH	C668F	7.6V	4250mAh	34Wh
YX0XH	C3F1X	7.6V	4250mAh	34Wh
FTD6M	T0T32	7.6V	2750mAh	22Wh
7CJRC	KNM09	11.4V	3500mAh	42Wh
6MT4T	CHWGG	7.6V	8180mAh	62Wh
WDX0R	Y3F7Y	11.4V	3500mAh	42Wh
C565C	KR854	11.1V	7650mAh	85Wh
Ј7НТХ	2JT7D	7.6V	4342mAh	34Wh
F62G0	39DY5	11.4V	3166mAh	38Wh
51KD7	YWD3C	11.4V	3500mAh	42Wh
J60J5	R97YT	7.6V	7080mAh	55Wh
W1193	TX283	11.1V	5400mAh	60Wh
KY265	MP492	11.1V	7500mAh	85Wh
PT434	NM632	11.1V	5000mAh	56Wh
DXGH8	G8VCF	8.8V	6910mAh	52Wh
DXGH8	G8VCF	8.9V	6870mAh	52Wh
Ј7НТХ	2JT7D	7.6V	4580mAh	34Wh
Ј7НТХ	DRPTJ	7.6V	4580mAh	34Wh
N71FM	GM06H	11.1V	5700mAh	65Wh
Y4367	D5540	11.1V	7200mAh	80Wh
5TF10	RY3F9	7.6V	8000mAh	64Wh



NYFJH	0WMRC	11.4V	8070mAh	97Wh
M5Y1K	GR437	14.8V	2700mAhh	40Wh
T749D	U116D	14.8V	2600mAhh	37Wh
F310J	C852J	11.1V	7260mAhh	85Wh

Model Name	Dell Part#	Nominal Voltage	Rated Capacity	Wh Rating
PW7015M	CTH86	14.8V	2850mAh	43Wh
PW7015M	X1F87	14.8V	2850mAh	43Wh
PW7015M	7D9P9	14.8V	2850mAh	43Wh
PW7015M	GRNDK	14.8V	2850mAh	43Wh
PW7015M	94TR3	14.8V	2850mAh	43Wh
PW7015M	TVWNV	14.8V	2850mAh	43Wh
PW7015M	5RY79	14.8V	2850mAh	43Wh
PW7015M	GF4MC	14.8V	2850mAh	43Wh
PW7015L	WG0XY	11.1V	5700mAh	65Wh
PW7015L	R7CW8	11.1V	5700mAh	65Wh
PW7015L	WF5RR	11.1V	5700mAh	65Wh
PW7015L	VGKV7	11.1V	5700mAh	65Wh
SMP43PH170	75VD5	14.8V	3100mAh	43Wh
SMP43PH170	VNVPY	14.8V	3100mAh	43Wh
SMP43PH170	HMH51	14.8V	3100mAh	43Wh
SMP43PH170	375VH	14.8V	3100mAh	43Wh
SMP43PH170	DGK94	14.8V	3100mAh	43Wh
SMP43PH170	K8MH2	14.8V	3100mAh	43Wh
SMP43PH170	D9TR5	14.8V	3100mAh	43Wh
SMP43PH170	9C76G	14.8V	3100mAh	43Wh
SMP43PH170	FYF53	14.8V	3100mAh	43Wh
SMP43PH170	NYT70	14.8V	3100mAh	43Wh
SMP43PH170	YN732	14.8V	3100mAh	43Wh
SMP43PH170	FFK61	14.8V	3100mAh	43Wh
SMP43PH170	0T8K1	14.8V	3100mAh	43Wh
SMP43PH170	44HRC	14.8V	3100mAh	43Wh
SMP43PH170	08JM4	14.8V	3100mAh	43Wh
SMP43PH170	0XVCJ	14.8V	3100mAh	43Wh
SMP43PH170	V4P85	14.8V	3100mAh	43Wh
SMP43PH170	4XHXF	14.8V	3100mAh	43Wh



SMP43PH170	XPRY0	14.8V	3100mAh	43Wh
SMP65PH180	39FCW	11.1V	6200mAh	65Wh
SMP65PH180	CN2H7	11.1V	6200mAh	65Wh
SMP65PH180	95GVM	11.1V	6200mAh	65Wh
SMP65PH180	2GMKY	11.1V	6200mAh	65Wh

Anode (negative electrode): based on intercalation graphite

Cathode (positive electrode): based on lithiated metal oxide (Cobalt, Nickel, Manganese)

Remark:

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