

Product Name.....: Lithium Ion (Li-Ion) Batteries Cell Model 18650SI

Section 4 – First Aid Measures

Under normal operating condition, contents of the cells are in sealed (polymer pouch/metal can or cylinder) condition and pose no threat to the user. Exposure to the cell internal content happens under abusive conditions.

INHALATION:

Contents of open battery may cause respiratory irritation. Move to fresh air immediately and seek medical attention.

SKIN CONTACT:

Contents of open battery may cause skin irritation. Wash skin with copious amount of soap and water.

EYE CONTACT:

Contents of open battery may cause eye irritation. Flush eyes immediately with water for at least 15 minutes and seek medical attention.

INGESTION:

Seek medical attention immediately. Induce vomiting.

Section 5 – Fire Fighting Measures

In case of fire use CO₂ or CLASS D fire extinguisher.

In case battery burns with other combustible, use corresponding fire extinguisher. Corrosive fumes may be present during fire. Use protective equipment (gloves, breathing apparatus, goggles etc.)

Gases from the burning fire will include Hydrogen Fluoride, Carbon oxides, Hydrocarbons among others.

Section 6 – Accidental Release Measures

Battery material is enclosed in either metal casing or in laminate and does not release easily under normal usage. Under abuse condition such as puncture, high heat exposure, electrical abuse electrolyte containing vinyl chloride salt in organic solvent may leak out. See section 4 for first aid measure. Seek medical attention.

Product Name.....: Lithium Ion (Li-Ion) Batteries Cell Model 18650SI

Section 7 – Handling And Storage

STORAGE:

Store within the recommended temperature limit of the battery (read instruction manual for specific limits). Do not expose to high temperature (60 °C/140 °F). Avoid short circuit of the battery. Short circuit of the battery may cause release of gas and may pose burn hazard.

HANDLING:

Do not disassemble, crush or otherwise abuse the battery. Do not open the battery.

CHARGE:

Charge only with dedicated/specific chargers designed for this battery.

DISCHARGE:

Discharge within the temperature limits of the battery detailed in the specification.

DISPOSAL:

Dispose/recycle according to the applicable municipal, state and federal regulations. Do not dispose in household or commercial waste bin.

CAUTION:

This battery when abused may pose fire, explosion and severe burn hazard. Handle with caution.

Product Name.....: Lithium Ion (Li-Ion) Batteries Cell Model 18650SI

Section 8 – Exposure Controls / Personal Protection

EXPOSURE LIMITS:

• Control parameters

Common chemical name / General name	ACGIH (2009)	
	TLV-TWA	BEI
Lithium transition metal oxidate	0.02mg/m ³ (as cobalt) * 0.2mg/m ³ (as manganese) * 0.2 mg/m ³ (as nickel) *	-
Aluminum	10mg/m ³ (metal coarse particulate) 5mg/m ³ (flammable 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	-	-

ACGIH: American Conference of Governmental Industrial Hygienists, Inc.
 TLV-TWA: Threshold Limit Value-Time Weighted Average concentration
 BEI: Biological Exposure Indices

ENGINEERING CONTROLS:

None required under conditions of normal use. Provide appropriate ventilation in case of electrolyte leakage or exposure.

PERSONAL PROTECTIVE EQUIPMENT:

Eye protection, gloves, ventilation, are not needed under normal usage.

Use safety goggles, acid resistant safety gloves, air mask if exposed to internal content of the cell/battery.

Product Name.....: Lithium Ion (Li-Ion) Batteries Cell Model 18650SI

Section 9 – Physical And Chemical Properties

Appearance	
Physical State	Sealed Battery
Form	Mostly cylindrical
Color	No data available
Odor	No data available
Odor Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%)	No data available
Flammability limit - lower (%)	No data available
Explosive limit – upper (%)	No data available
Explosive limit – lower (%)	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility(ies)	
Solubility in water	No data available
Solubility (other)	No data available
Partition coefficient (n-octanol/water)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

Product Name.....: Lithium Ion (Li-Ion) Batteries Cell Model 18650SI

Section 10 – Stability And Reactivity

Not reactive under normal condition of usage
Note safe handling procedure.
Avoid high temperature and mechanical abuse.
Read label and manufacturer instruction before usage.

Section 11 – Toxicological Information

Acute Toxicity:

Not known for Lithium Cobaltate, Aluminum, and Graphite.
Copper causes gastrointestinal disturbance in 60-100mg sized coarse particulate. TDLo- Rabbit 375mg/kg.
Organic electrolyte LD50, oral - -Rat 2000mg/kg or more

Local Effects:

Not known for Lithium Cobaltate, Graphite and Organic Electrolyte.
Aluminum has no known local effects.
Copper in coarse particulate is eye irritant.
No known carcinogen in this product.

Section 12 – Ecological Information

ECOLOGICAL INFORMATION:

Battery is not biodegradable. Do not dispose in landfill.

Section 13 – Disposal Consideration

WASTE DISPOSAL:

Dispose/Recycle according to the applicable municipal, state and federal regulations. Do not dispose in household or commercial waste bin.

Product Name.....: Lithium Ion (Li-Ion) Batteries Cell Model 18650SI

Section 14 – Transportation Information

UN Number: 3480

Proper Shipping Name: Li ion Battery

This battery is <100Wh and is shipped according to the regulations detailed in US Department of Transportation 49 Code of Federal Regulations for domestic shipping and Packaging instruction P965 of IATA DGR 55th edition for international air shipping following either

a.) PI965, Section 1B as Class 9

or

b.) PI965, Section II in excepted quantities which is then over packed

Section 15 – Regulatory Information

IATA (International Air Transport Association) Dangerous Goods Regulations 56th ed

IMDG (International Maritime Dangerous Goods) Regulations under Special Provision 188 (nondangerous goods)

US Department of Transportation 49 Code of Federal Regulations

Section 16 – Other Information

Prepared by:. Ridge Tool Company

Issue Date: 16 June 2015

Last Revision Date: 30 May 2015

RIDGE TOOL BELIEVES THE STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE RELIABLE BUT THEY ARE GIVEN WITHOUT WARRANTY OR GUARANTEE OF ANY KIND, EXPRESSED OR IMPLIED, AND WE ASSUME NO RESPONSIBILITY FOR ANY LOSS, DAMAGE OR EXPENSE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THEIR USE.