

# Guidelines

## For the storage and charging of lithium-ion batteries used in electric bicycles and scooters.

### The Issue

A **lithium-ion** battery uses a form of lithium polymer (that is a plastic) to deliver a fully rechargeable battery. The lithium ions in the battery are shifted from negative to positive while the battery discharges and they flow in the opposite direction when the battery is being recharged. Unlike a lithium battery, there is no lithium exposed in these batteries at any point and thus they must be handled quite differently to lithium batteries. The lithium-ion battery's main fire hazard is the presence of a flammable electrolyte. Based on documented evidence and the science of lithium-ion battery technology, improperly made, charged or stored lithium-ion batteries can explode and cause considerable fire and collateral damage. Fires resulting from the explosion spread fast and elements of the battery can be thrown up to sixty feet from the source. These battery also give off toxic gases. For these reasons, The Eliot has developed the following guidelines to help protect the residents and property.

### Type



Many of the documented fires have occurred in batteries that are improperly manufactured, stored or charged. It is recommended that all lithium batteries be UL or CE certified. Severe fires have been started by uncertified batteries.

### Storage

Batteries should be stored in an approved environment. While likely not applicable, they should be stored at temperatures above 32°F and below 105°F. Based on best practices, batteries should be stored at room temperature and kept out of direct sunlight. It is advisable to store the batteries, when not in use, within a fireproof cases. These cases also can provide a safer way to charge the batteries. Ideally the batteries should be stored where they charged and can be observed.

### Charging

Charge the battery strictly according to the manufacturers specifications. This includes not continuing to charge the battery after it is fully charged. Ideally, charging should only occur when the owner is present. Only plug the UL or CE certified charger into a grounded outlet. The charger should be unplugged when the battery is fully charged.

### Fire Protection

A fire generated by a lithium-ion battery explosion is a Class B (flammable liquid) fire. It is recommended that a Class ABC fire extinguisher and fire blanket be kept nearby the charger. Please note that any damage caused by improper handling, storage or charging of lithium-ion batteries is the personal liability of the owner.

## Disposal

Do **not** dispose of batteries in the trash chute or trash bins. Recycle them at [FreeGeek](#), [Metro Hazardous Waste](#) or your bicycle dealer.

## Warning Signs

It is recommended to stop using the e-bike or e-scooter if you notice any of these problems with the battery: unusual odor, change in color, too much heat, change in shape or swelling, leaking, smoking, or not keeping a charge.

## Suggested Products

- **Storage and Charging Bag:** Zeee Lipo Safe Bag. This is a fireproof charging bag that is explosion-proof. It measures 19.3" X 5.9" X 5.9".
- **Fire Extinguisher:** Fireox 7 in 1 Extinguisher. This is a multi-purpose and portable aerosol extinguisher for all fires including Lithium-Ion batteries.
- **Fire Blanket:** "Prepared Hero" emergency fire blanket. This blanket is 40" X 40" and can be used for suppressing fire.

## Link:

This link provides a current list of E-bikes that conform to international safety standards. It was compiled by *Cycling Weekly and* identifies many bike brands and models meeting Underwriter Laboratories certification standards. The list maintained by UL and by Cycling Weekly is frequently updated, but may not include the most recent updates. If you do not see a bike brand and/or model listed, inquire with the bike manufacturer regarding UL listing.

**Important note: this list is constantly changing and may not include e-bikes that conform to the standards.**

>> [Link to e-bikes that conform to international battery standards](#)

The following is a partial list of UL and CE E-Bike Brands.

[E-bikes that meet international safety standards:](#)

The list compiled by *Cycling Weekly* identifies many (but not all) bike brands and models meeting Underwriter Laboratories certification standards. The list maintained by UL and by *Cycling Weekly* is frequently updated but may not include the most recent updates. If you do not see a bike brand and/or model listed, inquire with the bike manufacturer regarding UL listing.

## UL and CE Listed E-Bike Brands as of May 2023 (Partial List)

<b><u>Manufacturer</u></b>	<b><u>Model</u></b>
<a href="#">3T Bicycles</a>	Boost
<a href="#">Argon18</a>	Dark Matter, Subito E-Gravel, Subito E-Road
<a href="#">Aventon</a>	Abound, Aventure, Level, Pace, Sinch, Soltera
<a href="#">Benno</a>	46er, Boost, Ejoy, Remidemi
<a href="#">Bianchi</a>	Aria E-Road, E-Impulsivo Road, E-Arcadex, E-Impulsivo Gravel, E-Omia, E-Omnia, E-Vertic, T-Tronik
<a href="#">Blix</a>	Aveny, Dubbel, Packa, Sol, Ultra, Vika+ (CE Listed)
<a href="#">BMC</a>	RoadMachine AMP, Fourstroke AMP, 257 AMP
<a href="#">Buzz</a>	Cerana, Charter, Charter F, Centris
<a href="#">Cannondale</a>	Synapse Neo, Topstone Neo, Moterra Neo, Treadwell Neo, Adventure Neo, Compact Neo, Tesoro Neo
<a href="#">Canyon</a>	Grail:ON, Precede:ON, Spectral:ON, Torque:ON
<a href="#">Co-op Cycles</a>	Generation, CTY
<a href="#">Cycles Devinci</a>	E-Enduro, E-All Mountain, E-Trail, E-Road, E-Urban, E-City
<a href="#">Dahon</a>	K-One
<a href="#">De Rosa</a>	E--do, E--Bike
<a href="#">Diamondback</a>	Union, Response, Current

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<b>Manufacturer</b>	<b>Model</b>
Electra	Loft Go, Townie Go, Townie Path Go, Vale Go, Ghost Rider Go, Ace of Spades Go, Navigator Go, Shibori Go, Cruiser Go, Bali Cruiser Go
Focus	Thron, Jam, Focus SAM, Jarifa, Aventura, Planet
Fuji	Blackhill EVO, E-Jari, Ambient EVO, Conductor, E-Traversal, Sanibel, E-Crosstown, E-Nevada
Giant Bicycles	Fastroad E+, Roam E+, Explore E+, Talon E+, Trance X E+, Stance E+, Reign E+
Gocycle	G4 (CE listed; UL certification pending)
Ibis	Oso
Jamis	Hudon E2 (CE Listed)
Jetson	Bolt, Bolt Pro, Bolt Up, LX10 Folding, Journey, Adventure, Haze Folding, J5, Jetson Axle, J8, Atlas Fat Tire, Arro Folding,
Juiced	RipRacer, Rip Current, CrossCurrent, Hyper Scorpion, Hyper Scrambler, City Scrambler
Kent	Hybrid, Mountain, Cruiser
Kinesis	Lyfe, Lyfe Step-Thru, Range Evation (inc. flat bar) Range Ride 50 (inc flat bar),
Kona	Remote, El Kahuna, Libre EL, Dew-E, Ecoco, Rove HD, Dew HD, Coco HD
Lectric	XP, XPedition, XPremium, Electric XP Trike (CE Listed)
Liv Bicycles	Amity E+, Thrive E+, Rove E+, Embolden E+, Tempt E+, Intrigue E+
Look	E-765 Gravel/Optimum/Gotham
Marin	Alpine Trail, Rift Zone, Sausalito, Stinson

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Mokwheel	Basalt, Scoria
Momentum Bikes	Voya+, Pakyak E+, Vida E+, LaFree E+Transcend E+
Murf Electric Bikes	Fat Murf, Alpha Cargo, Alfa Murf, Fat Murf Step-Thru, Higgs, Izzy
NEXT	Moscow Plus, C5, NCM Aspen, City Robin, Boogie Cruiser, ET Series, M7, C7, Milano, Cobra, Big Dog, Escape, Zebra, Cruiser, EE-Bike T7S
Niner	RIP, e9, WFO e9, RLT e9 RDO
Norco	Sight, Fluid, Range, Bigfoot, Charger, Indie, Scene
Orbea	Gain, Wild, Rise, Urrun, Kemen, Vibe, Optima
Pacific Cycles	Moove, E-Birdy
Pedelec	AWDIII, CORE
Pinarello	Nyro, Nyro Dust
Rad Power Bikes	RadRover, RadExpand, RoadRunner, RadWagon, RadCity, RadExpand, RadTrike
Raleigh	Retroglide Royale, Venture
Retrospec	Koa Rev+, Koa Rev+ Step-Through, Beaumont Rev Electric City Bike, Beaumont Rev Electric City Bike Step-Through, Valen Rev Electric Fat Tire Bike, Valen Rev Electric Fat Tire Bike Step-Through, Chatham Rev Electric Beach Cruiser Bike, Chatham Rev Electric Beach Cruiser Bike Step-Through, Jax Rev Electric Folding Bike
Ride1Up	Core-5, Roadster, Turris, LMT'D, Cafe Cruiser, 700 Series, Rift, Prodigy, Revv1

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<u>Manufacturer</u>	<u>Model</u>
Scott	Patron, Strike, Contessa, Lumen, Aspect, Solace, Addict, Contessa Addict, Sub Cross, Solace Gravel, Contessa Solace Gravel, Sub Active
Specialized	Haul, Turbo Levo, Turbo Tero, Turbo Tero Step-Thru, Tero Como, Turbo Vedo, Turbo Vedo Step-Thru, Turbo Kenovo, Turbo Creo
Surly	Skid Loader, Big Easy
Tern	Quick Haul, NBD, Vektron, HSD, GSD
Trek Bicycles	Fuel, Rail, Domane+, E-Caliber, Fetch+, Powerfly, Allant+, Townie Path Go!, Vale Go!, Verve+, Ghost Rider Go!, Ace of Spades Go!, Navigator Go!, Townie Go! Step-Thru, Townie Go! Step-Over, FX+, Dual Sport+, Loft Go! Step-Thru, Loft Go! Step-Over, Bali Cruiser Go!, Shibori Cruiser Go!, Kakau Cruiser Go!, Cruiser Go! Step-Over, Cruiser Go! Step-Thru
VanMoof	S5, A5, S4, X4, S3, V
Wilier-Triestina	Ultra Hybrid, Filante Hybrid, Cento1 Hybrid, Triestina Hybrid, Jena Hybrid, 101X Hybrid, 101X Hybrid, E903TRN, E830TRB
Wing	Freedom X, Freedom Fatty 2, Freedom 2, Freedom ST
Yamaha	CrossCore, CrossConnect, Wabash, UrbanRush, Civante, YDX-Torc, TDX-Moro,
Yeti Cycles	160E