Lithium Battery FAQs

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Lithium Rechargeable Battery Information and FAQs

The Lithium rechargeable battery is widely used where portable electronics requires low weight, slim profile custom electrical power that is rechargeable. There are many applications in which this is the best approach.

These batteries are manufactured to meet specific customer size and electrical specifications. This technology is more expensive to manufacture and the fact that designs are custom or product specific makes them even more expensive. The volume and demand pricing structure is not the same as for the typical standard rechargeable battery configuration (AAA, AA, C, D).

There are many applications in which the use of a Lithium rechargeable battery in a design is not the best choice for the consumer. GMRS radios, GPS receivers and other portable handheld devices can use or are sold with AAA or other size NiMH rechargeable batteries and a charging station.

In general, the use of standard rechargeable battery sizes should be used where possible. This gives the consumer a better choice of availabe products on the market. Replacement of these batteries is simple and much less costly than a custom designed Lithium Ion battery pack. These standard NiMH rechargeable batteries are also much more environmentally friendly and easier to recycle.

The energy density of newer NiMH batteries makes the use of standard size rechargeable batteries very desirable. Many consumers would rather buy a digital camera that accepts AA batteries. Lithium rechargeable batteries for digital cameras can easily cost $50 - $70 dollars. You can buy 4 AA batteries for under $10 dollars.

{mospagebreak title=Lithium Battery Types}

Difference between the Lithium Battery and Lithium Ion Battery

- Lithium batteries are not rechargeable.
- Li-ion batteries are rechargeable.
- Lithium batteries use lithium in its pure metallic form.
- Li-ion batteries use lithium compounds which are much more stable than the elemental lithium used in lithium batteries.
- A lithium battery should never be recharged.
- Lithium-ion batteries are designed to be recharged hundreds of times.

{mospagebreak title=Lithium Ion Benefits}
Benefits of the Lithium Ion Battery

- They have a higher energy density than most other types of rechargeables.

- They operate at higher voltages than other rechargeables, typically about 3.7 volts for lithium-ion vs. 1.2 volts for NiMH or NiCd.

- Lithium-ion batteries have a lower self discharge rate than other types of rechargeable batteries.

- Once they are charged they will retain their charge for a longer time than other types of rechargeable batteries

- Lithium-ion batteries can be smaller, lighter, have a higher voltage and hold a charge much longer than other types of rechargeable batteries.

- Self-discharge is less than half of NiCD.

- Li-ion batteries include special circuitry to protect the battery from damage due to overcharging or undercharging.

- No memory and no cycling is required to prolong the battery's life.

{mospagebreak title=Disadvantages}
Disadvantages of the Lithium Ion Battery

- Lithium-ion batteries are more expensive than similar capacity NiMH or NiCd batteries.

- They are much more complex to manufacture.

- Subject to aging, even if not in use. Aging is a concern with most lithium-ion batteries.

- Lithium ion batteries are not available in standard cells sizes (AA, C and D).

- Lithium-ion batteries require sophisticated chargers that can carefully monitor the charge process.

- Lithium-ion batteries are designed for specific custom applications. There are no standard sizes.

- Each type of Li-ion battery requires a charger designed to accommodate its particular size. Just try to use your Canon charger on a Sony battery.

- Lithium ion battery chargers can be more than NiMH and NiCd battery chargers.

- Lithium-ion batteries are fragile.

- They require a protection circuit to maintain safe operation.

- Transportation restrictions - shipment of larger quantities may be subject to regulatory control. This restriction does not apply to personal carry-on batteries. (See last section)

- Expensive to manufacture - about 40 percent higher in cost than Ni-Cd batteries.

- Not fully mature - metals and chemicals are changing continuously

{mospagebreak title=3rd Party Brands}
Are Name brand Lithium Ion batteries better than 3rd Party Batteries

- That is a question we hope to answer on this web site.

- The forum is a good place for users to post and to exchange information. Long term usage is difficult to measure and very time consuming.

- There are differences in all batteries by different manufacturers.

- Digital product manufacturers have a very strong interest in

- buying the best. They do not want warranty returns.

- Yes, there are bad products out there.

- We have seen 3rd party Lithium Ion batteries for camcorders and digital cameras die in less than 1 year (not even 10 charges).

- The original manufacturer battery is still good after 3 years.

{mospagebreak title=Storage}
Lithium Ion Battery Storage

- Lithium Ion batteries can hold a charge for many months.

- It is best to store a lithium-ion battery with a full charge.

- A lithium-ion battery with a very low charge stored for a long period may have its voltage drop to below the usable level. The built in circuitry might have problems charging at this point.

- Storage in a cool place slows the aging process of lithium-ion.

- Some Lithium batteries can be stored for over 6 months with no use and no major side effects. Again, each battery is different.

- Recharge the battery every few months.

{mospagebreak title=Disposal}
Lithium Ion Battery Disposal

- Lithium ion batteries, like all rechargeable batteries are recyclable.

- Lithium ion batteries should be recycled.

- They should never be incinerated, they might explode.

- Most places that sell rechargeable batteries will accept them for recycling.

{mospagebreak title=Charging}
Lithium Ion Charging

- Lithium ion and lithium polymer battery chemistries are basically the same. The same charging methods can be used.

- Trickle charging is not acceptable for lithium batteries.

- The Li-ion chemistry cannot accept an overcharge without causing damage to the cell.

- Charging should only be done using the appropriate Lithium Ion Battery Charger.