Why use lithium ion batteries

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Compared with traditional battery technology, lithium-ion batteries charge faster, last longer, and have a higher power density for more battery life in a lighter package. When you know a little about how they work, they can work that much better for you.

Your Apple lithium-ion battery uses fast charging to quickly reach 80% of its capacity, then switches to slower trickle charging. The amount of time it takes to reach that first 80% will vary depending on your settings and which device you"re charging. Software may limit charging above 80% when the recommended battery temperatures are exceeded. This combined process not only lets you get out and about sooner, it also extends the lifespan of your battery.

Lithium-ion batteries have been around since the 1970s. The batteries were non-rechargeable and only lasted for a short period of time. Commercial production took off in the 90’s and the technology has been improving ever since.

At first, lithium-ion batteries were primarily used in smaller consumer electronics. As time passed and the technology has been refined, their application has greatly expanded, Manufacturers began to see their value in automotive and motorsports world and began to invest heavily in research and development.

A lithium-ion battery offers superior performance and several distinct advantages over the traditional batteries when it comes to powering your car, truck, boat, or golf cart.

Lithium iron phosphate batteries are an increasingly popular way to power electronic applications, including recreational vehicles, solar energy systems and military hardware. Although it costs more upfront, lithium provides superior longevity, efficiency and safety benefits compared to traditional, lead acid batteries.

The battery itself contains a cathode, anode, electrolyte, separator, and a positive and negative current collector. The cathode and anode store the lithium. The job of the electrolyte is to carry the positively charged lithium ions from the anode to the cathode and back again through the separator.

As the lithium moves along, it creates free electrons in the anode area—this creates a positive charge at the positive current collector. The electrical current moves from the current collector through the car and then back to the negative current collector[1][TD2].

The technology that powers lithium-ion batteries has improved dramatically over the decades—to the point that they offer some pretty valuable advantages over a traditional lead-acid battery:

Lithium-ion batteries are low-maintenance, which is an advantage that many other battery chemistries do not

have. They do not retain a memory, nor do they require scheduled cycling to prolong life, and have a much higher energy density than a traditional lead-acid battery.

This means they can store much more energy in the same physical space. This directly translates to more power for longer periods of time. Lithium-ion batteries are also extremely efficient. They’re rated around 95% efficiency versus around 80 to 85 percent for a standard lead-acid battery.

One of the biggest advantages of lithium-ion batteries is the amount of research and development that battery manufacturers are investing in. The technology that powers these batteries is growing by leaps and bounds every year. This means that they will incorporate their new discoveries into future battery models—a win-win situation for both manufacturer and consumer.

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