Types of batteries used in electric vehicles

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The most common EV battery types are lithium-ion, nickel-metal hydride, lead-acid, and ultracapacitor. Each battery type has some advantages and disadvantages. Like the lead-acid batteries are economical and...

The different types of batteries being used today are lithium-ion, nickel-metal hydride, lead-acid, and ultracapacitors. New technology such as solid-state batteries are just a few years away from being used in EVs...

Most new electric cars feature lithium-ion batteries. There are 6 main chemistry types of lithium and cars tend to use the most energy-dense. This is usually Lithium Cobalt Oxide (LCO) or Lithium Nickle Cobalt Oxide...

The type of battery that powers your electric vehicle makes a big difference when it comes to range. Besides that, how fast you recharge your EV or how long it will last after the manufacturer's warranty depends on the type of battery. In fact, even the safety of your electric vehicle is determined by the battery pack.

A lead-acid battery is the traditional type of battery used in most gasoline vehicles to start the engine. Beyond that, some of the earliest electric vehicles in the 90s, like the GM EV1 or the Ford Ranger EV, used lead-acid batteries.

However, lead-acid batteries are no longer used by EV manufacturers because they're inefficient. More succinctly, lead acid batteries are susceptible to cold temperatures, and they're not durable compared to other types of EV batteries. Not to mention, they're heavy and bulky.

Then again, lead acid batteries are inexpensive, and they're a good option if you're converting a gasoline vehicle to an electric vehicle—although marine deep-cycle batteries are best suited for that kind of that job.

After auto manufacturers phased out lead acid batteries, nickel metal hydride batteries were often used as an alternative. Some early electric vehicles fitted with nickel metal hydride batteries include the Honda EV Plus, Toyota RAV4 EV, and the Ford Ranger EV.

But nickel metal hydride batteries didn't become popular in the electric vehicle industry because they're expensive and inefficient at high temperatures. Also, nickel metal hydride batteries discharge faster than other batteries. For that reason, nickel metal hydride batteries are more common in hybrid vehicles than electric vehicles.

Most electric vehicles nowadays use lithium-ion batteries. This is because they're lightweight with high

energy efficiency than lead acid or nickel metal hydride batteries. They're also less likely to overheat at high temperatures, which helps minimize the risks of a fire breaking out.

Beyond that, lithium-ion takes longer to discharge compared to other types of batteries. Some of the longest-range electric vehicles with lithium-ion batteries can travel over 500 miles on a full charge. It's even more impressive that a Tesla with a lithium-ion battery pack comes with a warranty of eight years—but a Tesla's expected lifespan is between 300k to 500k miles.

However, not all lithium-ion batteries are the same. Most high-end electric vehicles have lithium-ion batteries with a positive electrode made from cobalt. On the other hand, some EV manufacturers are shifting towards lithium iron phosphate batteries for entry-level electric vehicles.

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