# 5 Things You Should Know About EV Batteries

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EV batteries shouldn't be a mystery, especially as more EVs come onto the road and ICEs are phased out.

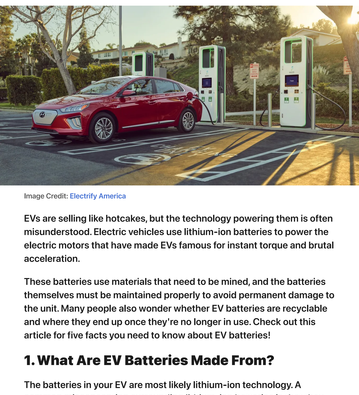

Image Credit: Electrify America

EVs are selling like hotcakes, but the technology powering them is often misunderstood. Electric vehicles use lithium-ion batteries to power the electric motors that have made EVs famous for instant torque and brutal acceleration.

These batteries use materials that need to be mined, and the batteries themselves must be maintained properly to avoid permanent damage to the unit. Many people also wonder whether EV batteries are recyclable and where they end up once they're no longer in use. Check out this article for five facts you need to know about EV batteries!

## 1. What Are EV Batteries Made From?

The batteries in your EV are most likely lithium-ion technology. A common misconception surrounding lithium-ion batteries is that they are made exclusively of lithium, but this is not the case. EV batteries are composed of various other components. One of the most important components in the manufacturing process of EV batteries is cobalt. The funny thing is that while the batteries are called lithium-ion, cobalt is actually the material with the highest price in the production of lithium-ion battery cathodes, according to the Department of Energy.

> *Cobalt is an important ingredient in lithium-ion battery cathode production, accounting for about a quarter of the cost of the battery.*

Other than the cost-intensive cobalt, lithium-ion batteries use metals like nickel and aluminum. EV batteries also contain manganese. EV batteries also contain materials that aren't considered metals, such as graphite. Graphite has an interesting property because it is the only non-metal element on the periodic table capable of conducting electricity. Other than the ingredients above, EV batteries also contain the famous lithium, of which a large part is mined in Chile.

Manufacturing an EV battery is the most controversial aspect of making an EV, especially because the materials that go into EV batteries need to be mined. Unfortunately, mining practices around the globe aren't necessarily the best, and lithium mining, in particular, is problematic due to the environmental toll it exerts on its surroundings.

## 2. How Long Do EV Batteries Last?

One of the biggest concerns the average car shopper has when considering an EV is related to the durability of an EV's battery. Consumers know that when they purchase a conventional vehicle, they can expect many years of service as long as they keep up with maintenance. Consumers view EVs differently, though, and the main reason is due to the battery.

There's a common misconception that an EVs battery will only last a few years. This is not the case. Take Tesla as an example. If you're asking how long a Tesla battery lasts, you can expect somewhere between 300,000 to 500,000 miles of service from your EVs battery. That is if Elon Musk is correct. He tweeted about the Model 3 life expectancy and hinted at those numbers.

Even internal combustion vehicles have difficulty reaching these high mileage figures, so the fact that an EV is rated for these numbers should be a relief for many.

## 3. Are EV Batteries Safe?

Another huge misconception about EVs is that they're going to explode at any moment or that the driver will get electrocuted while driving the car. Of course, freak accidents can happen, but electric vehicles are perfectly safe forms of transportation. The batteries are also protected, especially if you buy a heavy-duty EV like the futuristic Rivian R1T.

The Rivian is full of underbody armor that protects the entire underside of the vehicle, which will also help shield the battery from harm. EVs are extensively crash tested before they are available for consumers to purchase, so battery safety in a car crash is an absolute priority for EV manufacturers.

Tesla vehicles routinely place very high in the standings regarding vehicle safety ratings, so you can rest assured that purchasing an EV won't make your commute any more dangerous. All in all, EVs are very safe vehicles, although the possibility of a battery pack catching fire is something that can't be completely ruled out. The scary part is that when one of these lithium-ion batteries catches fire, extinguishing it can prove to be a rather tedious task.

## 4. What Happens When Your EV Battery Dies?

If you're wondering how much it costs to replace a Tesla battery or any EV battery for that matter, you're not alone. This is one of the biggest fears prospective EV buyers have to face when considering an EV. The truth is that premature battery death can't be sugarcoated. There is a possibility that your battery becomes damaged, whether it's in an accident or other factors which might lead to premature death.

This is especially scary if your EV is out of the warranty period and terrifying if you own a Tesla. Tesla batteries are extremely expensive, and in some cases, you're looking at well over $10,000 to replace a failing battery on a Tesla. If it's a Model S Plaid or something of this nature, you can be assured it will be way more expensive to replace.

## 5. Can EV Batteries Be Recycled?

EV batteries will be the big environmental question heading into the 2020s. Especially because mining the materials contained in these batteries is already a hot-button topic. If EVs are going to be viable options for clean transport, recycling batteries will have to be a must. There are already companies hard at work trying to figure out the best methods for recycling EV batteries.

One of these companies is Redwood Materials, and they are teaming up with industry giant Ford in an effort to recycle materials from batteries that have already met the end of their life cycle. So, while recycling these batteries at the moment is not an easy task, many resources are being invested in making this process feasible and economical.

## Consumers Are Becoming Better Informed About EVs

EVs are quickly becoming demystified, and consumers are informing themselves about EVs. This means that many of the misconceptions surrounding EVs are slowly disappearing. Of course, there is still much work to be done to improve electric vehicles and people's perception of them, but EVs are certainly going down the correct path.

How to Check Your EV Battery Health

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