

How long will a lithium battery last unused

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Lithium batteries have become essential in our everyday devices, from smartphones to laptops to electric cars. But have you ever wondered what happens if these batteries sit unused for a long time? In this article, we'll dive into the effects of leaving lithium batteries unused, the best practices for storing them, and tips to maintain their longevity. Let's get started and make sure your lithium batteries stay in top shape!

When lithium batteries are left unused for extended periods, several things can occur. Firstly, they experience self-discharge, which means they gradually lose their charge over time, even if they're not powering a device. This self-discharge can lead to a completely drained battery if left unchecked. Additionally, a passivation layer might form on the battery's electrodes. This layer increases the battery's internal resistance, which reduces its capacity and efficiency. Essentially, your battery won't perform as well as it used to.

Let's break it down further:

When it comes to storing lithium batteries, you might wonder whether it's best to store them charged or uncharged. The general consensus among experts is to store lithium batteries at about 50% to 60% of their capacity. Storing them fully charged can put extra stress on the battery, while storing them completely discharged can cause them to enter a deep discharge state, which is harmful. Keeping them partially charged helps to maintain their overall health and prolong their lifespan.

1. Storing Fully Charged Batteries

While it might seem logical to store a fully charged battery, doing so can put unnecessary stress on the battery cells. High voltage can cause the battery to degrade faster, reducing its overall lifespan. If you plan to store your lithium batteries for an extended period, avoid charging them to 100%.

2. Storing Fully Discharged Batteries

On the other hand, storing batteries that are completely discharged can lead to a condition known as deep discharge. In this state, the battery's voltage drops too low, making it difficult, if not impossible, to recharge. Deep discharge can cause permanent damage to the battery, reducing its capacity and overall lifespan.

The sweet spot for storing lithium batteries is at a partial charge, around 50-60%. This level helps to minimize stress on the battery cells while preventing deep discharge. It's a balanced approach that ensures the

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battery remains in good condition during storage.

You might be curious about how long you can store a lithium battery before it starts to degrade. Generally, lithium batteries can be stored for up to 6 to 12 months without significant degradation, provided they are stored under the right conditions. However, it's a good idea to check on them every few months to ensure they're still in good condition. Here are some storage tips:

Several factors can influence how long you can store a lithium battery before it starts to degrade:

Leaving a lithium battery completely uncharged for a long time can be detrimental. If a lithium battery is left in a discharged state for too long, it can fall into a deep discharge state. In this state, the battery's voltage drops too low, which can lead to irreversible damage and a significant reduction in capacity. To avoid this, always ensure that lithium batteries are stored with a partial charge.

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