

## AVILOO Tips:

## REDUCE THE RISK OF EV BATTERY FAULTS

**Wiener Neudorf 23. 11. 2023** - Electric vehicles have long since become part of our everyday lives, and taking proper care of their batteries is crucial to avoid premature ageing and serious malfunctions. AVILOO, expert in the field of battery diagnostics, provides valuable tips for optimum battery utilization:

**As few full cycles as possible:** Reduce the number of full cycles through an efficient driving style and adequate preconditioning in order to conserve the battery. There is often a misunderstanding that a full cycle means discharging the battery from 100 to 0 percent. In fact, this refers to the energetic cycles. For example, if a battery has 100 kWh of energy and 10,000 kWh are charged and discharged within a year, this results in 100 full cycles. Depending on the technology, most batteries are designed for 2,000 to 3,000 full cycles. Drivers have the option of reducing the number of full cycles by adopting an efficient driving style. This protects the battery and prevents excessive State of Health (SoH) loss.

**Correct charging:** When the battery is fully charged or heavily discharged, electrons are deposited on one electrode and ions on the other. This can lead to instability within the cell and possibly to cell defects. The optimum utilization range is between 20% and 80%, as there is a sufficient balance between positive and negative poles in this range. Avoid full charging and discharging below SoC 20 %, especially if the vehicle is not used for longer periods of time, for example over the weekend. If the car has to be left standing for a long time, it is best to leave it at a charge level of around SoC 50 %.

Also avoid regular fast charging, as this places a particularly high load on the battery.

**Preconditioning:** Use adequate preconditioning to prepare the battery for the charging process. If the vehicle is connected to the wallbox during preconditioning, the electricity is used directly from the socket without having to take a detour via the battery. In this way, you avoid additional cycles and reduce the load on the battery. Preconditioning also plays an important role in fast charging. Modern vehicles have an automatic preconditioning function, which is activated when an upcoming charging station is displayed in the navigation system. This enables the battery to be preheated before the actual charging process. This not only makes charging more gentle, but also speeds up the charging process. The use of preconditioning is particularly important in winter.

**Regular testing:** Regular testing allows you to determine whether your vehicle is being used efficiently and gently. Anomalies in battery performance can indicate possible defects such as cell defects, problems in the battery management system (BMS) or in thermal

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management. Particularly under extreme temperatures or loads, such as in icy winters, such anomalies can impair vehicle behavior and even pose risks for electric vehicle users. Both AVILOO test can offer comprehensive analysis down to cell level.

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