



## ***Storing and recharging filled batteries***

To ensure our batteries safely reach their maximum shelf life, the average annual storage temperature should be 15°C. The short-term storage temperature must not exceed 25°C or battery life may be affected. Of course, batteries should be sold according to the first-in, first-out principle. To make it easy to check battery age, all VARTA® products are colour coded according to the date of manufacture – see the table above.

## ***Guidelines for installation and recharging***

### ***1. Installation***

For maximum product life and performance, install the battery within 15 months of the date of manufacture (see table above). The terminal voltage should be greater than 12.2 V.

### ***2. Recharging***

After long periods of storage (12 months or more) the battery will need to be recharged when the terminal voltage falls below 12.5 V. When recharging, please keep yourself and your colleagues safe by following all the relevant safety recommendations (such as wearing protective glasses).

#### ***2.1 Checking the terminal voltage***

The terminal voltage should be checked six months after the date of manufacture. And if the voltage has dropped below 12.5 V, the battery needs to be recharged to between 12.7 and 12.8 V before being stored further.

#### ***2.2 Measuring the terminal voltage***

The terminal voltage is best measured with a digital multimeter (1 mV resolution) at a room temperature of approximately 20°C.

#### ***2.3 Recharging recommendations***

If the terminal voltage drops below 12.5 V, the battery must be recharged. The recommended charge current equates to one tenth of the battery's nominal capacity (e.g. 8 A for a battery with a nominal capacity of 80 Ah). How long the battery needs to be recharged obviously depends on how it's going to be used afterwards.

#### ***If the battery is to be installed immediately:***

A short recharging period is generally sufficient (i.e. a terminal voltage of between approx. 12.2 and 12.5 V, measured approx. one hour after the recharging period is complete).

#### ***If the battery is being returned to storage:***

Then a maximum charge is needed (see page XX ). A 44 Ah battery with a terminal voltage of 12.45 V can be charged to approximately 100 % in 2.7 hours with a recommended charge current of 4.4 A – equal to one tenth of the battery's nominal capacity (U<sub>0</sub> terminal voltage = 12.8 V).

The charging time falls proportionately with the rise in the current the battery can supply (e.g. when the charge current is doubled to 8.8 A, the charging time is reduced by half to 1.35 hours).

The terminal voltage should always be checked again at least one hour after recharging. And please remember to avoid overcharging as it leads to permanent battery damage.