

# NiMH Battery Storage Recommendations

While advice may vary slightly from one cell manufacturer to the next, we are all generally on the same page regarding storage and maintenance requirements. Please review the information below for our best advice for maintaining your batteries.

## TEMPERATURE & HUMIDITY CONTROL

To avoid accelerated battery self-discharge during periods of storage, it is recommended that long term storage locations are kept between the temperature range of 10–30°C. The lower the temperature in this range, the better.

Relative humidity is another factor. The maximum storage level is 50 percent while the recommended level is 30 percent. Again, the lower the better.

## SHELF LIFE

Even with the proper care, NiMH batteries can only be stored for 3-5 years. This period is determined by the quality of cells, in particular their rate of electrolyte leakage through micro pores and cracks in the cells casing.

Beyond this time frame, electrolyte loss becomes excessive and the cell performance falls below the level needed for practical operation. Electrolyte loss is irreversible.

## CHARGE LEVEL

Charge level is not critical for this battery chemistry. We recommend charging to approximately 50 percent prior to long-term storage for the best results.

## CAPACITY RECOVERY

After extended periods of storage, significant capacity loss may occur, so recharging is required. However, there are two kinds of capacity losses to consider for optimal battery maintenance.

### SELF-DISCHARGE

Nickel-based batteries lose 10-15 percent of their charged capacity in the first 24 hours after charge, then 10-15 percent per month due to a built-in load. Normal charging recovers all this loss.

### CHEMICAL DEACTIVATION

Atmospheric gas ingress induces chemical side reactions that slowly de-activate capacity. This loss ranges from 0.5-2.5 percent per month. Some of this capacity loss can be recovered by recharging. If a trickle charger is available, it should be used first. If not, an additional two to three complete charge/discharge cycles will recover whatever deactivated capacity is possible to recover.