

Biotest HYCON Systems

*Technical Bulletin
TB-01-08 (May 2008)*

**Proper Care and Maintenance of Batteries for RCS
High Flow and RCS Plus Microbial Air Samplers**

Biotest employs Nickel-Cadmium (NiCd) battery chemistry for use with RCS High Flow and RCS Plus Microbial Air Samplers. There are several advantages to the use of this chemistry:

- Low cost per charge cycle
- High number of charge cycles (>1000)
- Constant voltage delivered during use (very important to control rotor speed and calibration)
- Fast, simple charge cycles (~1 hr).

A potential disadvantage described as "memory effect" can occur if the batteries are not properly maintained. Memory effect is the phenomenon that the apparent capacity of the battery is significantly reduced over time. This effect is caused primarily by re-charging the battery when it has not been fully discharged. After several cycles of this type, the battery develops a "memory" of this partial charge and appears to have a lower capacity (i.e. fewer samples per full battery charge).

Fortunately, this effect can be prevented and sometimes even reversed with proper care and maintenance of NiCd batteries. In general, optimal life and performance of NiCd batteries is obtained when the batteries are properly conditioned prior to use and when fully discharged prior to re-charging.

Conditioning

New NiCd batteries should be conditioned prior to first use by performing 3 to 5 rapid discharge / re-charge cycles. This establishes the maximum possible capacity and performance by optimizing the internal battery chemistry.

Use

NiCd batteries should usually be re-charged only when empty to prevent the build-up of "memory effect". This means normally the battery should be used until the low battery warning is displayed or until the RCS no longer operates. The batteries should also be fully charged* before removing from the charge cycle. Occasional partial charge cycles do not cause permanent harm.

****Do not leave batteries in the charger longer than one day.***

Maintenance

A minimum of once per month, batteries should be deeply discharged (exercised) to rebalance the chemistry and reverse any memory effects of partial discharge / charge cycles.

Following these simple recommendations will ensure a long life and satisfying experience using the NiCd battery system.

Biotest RCS Battery Discharger

(Art. Nr. 940 380)

For conditioning and routine maintenance of Biotest RCS NiCd batteries