

SIDEPAK™ NIMH BATTERY MAINTENANCE

APPLICATION NOTE ITI-092 (A4)

All TSI® SIDEPAK™ instruments can be used with all of the SIDEPAK™ Nickel Metal Hydride (NiMH) Batteries that incorporate the Smart Battery Management System™ technology. These NiMH batteries provide many advantages over older battery technologies (e.g., NiCad with their memory issues). However, the NiMH batteries require care and maintenance to ensure their optimal function. These issues are covered in this application note.

Getting Started

When you first receive a SIDEPAK™ instrument with a NiMH battery you will need to charge and discharge the unit several times (typically 3 charges and 2 full discharges is enough to get good run time information) in order for the Smart Battery Management System™ technology to optimize its performance. Each time you initiate the charging cycle the battery will fully charge. However, the battery's run time information will become more accurate after each successive charge and discharge cycle. Simply put, the more you use the SIDEPAK™ instrument with the NiMH battery, the smarter it will get and the more accurate the run time information will be. The initial charging procedure is outlined below:

Charging Procedure

- Charge #1
- Discharge #1
- Charge #2
- Discharge #2
- Charge #3

Smart Battery Management System™ technology charging is now complete and optimized.

For additional battery charging instructions see "Chapter 4 Maintenance; Charging a NiMH Battery Pack" found in all of the SIDEPAK™ instrument User Guides.

To discharge the various SIDEPAK™ instruments use the following procedure to minimize the time to discharge the battery:

- **AM510:** go to the MAIN MENU ← Setup ← Adjust Flow ← FLOWRATE 150 Range (adjust flow setting via ▼▲ keys) with no sampling train attached in open flow mode and wait for the battery to run down and the instrument to shut off. Then, recharge the battery.
- **SP330/SP350:** go to the SETUP MENU ← Flow Setpnt ← ADJUST FLOW 80.0% RANGE (adjust flow setting via ▼▲ keys) with no sampling train attached in open flow mode and wait for the battery to run down and the instrument to shut off. Then, recharge the battery.



- **SP530/SP730:** go to the MAIN MENU ← Flow Setpnt ← ADJUST FLOW 2000 cc/min (adjust flow setting via ▼ ▲ keys) with no sampling train attached in open flow mode and wait for the battery to run down and the instrument to shut off. Then, recharge the battery.

Note: *It is always recommended that you charge your SIDEPAK™ instrument with NiMH battery pack after each use to optimize and maintain the Smart Battery Management System™ between uses.*

Storage of NiMH Battery Packs Between Uses

Remember that all rechargeable battery technologies (NiMH, NiCad, Lilon, Lead Acid, etc.) will lose charge over time due to charge dissipation. If you store your SIDEPAK™ instruments between uses for more than 2 months (60 days) make sure that it is completely charged before doing so. Storage of exhausted batteries (from not recharging and storing after use) may result in the batteries becoming unusable over time. Deep battery discharge is possible if this occurs and it may not be possible to recondition the NiMH battery once this has happened.

During storage it is recommended that you discharge then charge your SIDEPAK™ instruments every 4 to 6 weeks to ensure that the NiMH battery is maintained and charged and the Smart Battery Management System™ technology is optimized. Simply follow the discharging and charging procedure described above or from any of the SIDEPAK™ instrument User Guides in Chapter 4 Maintenance. Not following this recommendation could lead to requiring the “Getting Started” procedure to be repeated again.



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