

	Nickel-cadmium (NiCd)	Nickel-metal-hydride (NiMH)	Lithium-ion (Li-ion)	Lead-acid (Sealed or flooded)
Used in	Two-way radios, power tools, medical.	Similar application as NiCd; higher density.	Cell phones, laptops, video cameras.	Motorcycles, cars, wheelchairs, UPS.
Charging	<p>Do run the battery fully down once per month; try to use up all energy before charging.</p> <p>Do not leave battery in charger for more than 2 days because of memory.</p> <p>Avoid getting battery too hot during charge.</p> <p>Charge methods: Constant current, followed by trickle charge when full. Fast-charge preferred over slow charge. Slow charge = 16h Rapid charge = 3h Fast charge = 1h+</p>	<p>Do run the battery fully down once every 3 months. Over-cycling is not advised.</p> <p>Do not leave battery in charger for more than 2 days because of memory.</p> <p>Avoid getting battery too hot during charge.</p> <p>Charge methods: Constant current, followed by trickle charge when full. Slow charge not recommended. Battery will get warm towards full charge. Rapid charge = 3h Fast charge = 1h+</p>	<p>Do charge the battery often. The battery lasts longer with partial rather than full discharges.</p> <p>Do not use if pack gets hot during charge. Check also charger.</p> <p>Charge methods: Constant voltage to 4.20V/cell (typical). No trickle-charge when full. Li-ion may remain in the charger (no memory). Battery must remain cool. No fast-charge possible.</p> <p>Rapid charge = 3h</p>	<p>Do charge the battery immediately after use. Lead-acid must always be kept in a charged condition. The battery lasts longer with partial rather than full discharges. Over-cycling is not advised.</p> <p>Charge methods: Constant voltage to 2.40/cell (typical), followed by float held at 2.25V/cell. Battery must remain cool. Fast charge not possible; can remain on float charge.</p> <p>Slow charge = 14h Rapid charge = 10h</p>
Discharging	<p>Full cycle does not harm NiCd. <i>NiCd is one of the most hardy and durable chemistries.</i></p>	<p>Avoid too many full cycles because of wear. Use 80% depth-of-discharge. <i>NiMH has higher energy density than NiCd at the expense of shorter cycle life.</i></p>	<p>Avoid full cycle because of wear. 80% depth-of-discharge recommended. Re-charge more often. Avoid full discharge. Low voltage may cut off safety circuit</p>	<p>Avoid full cycle because of wear. Use 80% depth-of-discharge. Recharge more often or use larger battery. <i>Low energy density limits lead-acid to wheeled applications</i></p>
Service needs	<p>Discharge to 1V/cell every 1 to 2 months to prevent memory. Do not discharge before each charge.</p>	<p>Discharge to 1V/cell every 3 months to prevent memory. Do not discharge before each charge</p>	<p>No maintenance needed. Loses capacity due to aging whether used or not.</p>	<p>Apply topping charge every 6 months. Occasional discharge/charge may improve performance.</p>
Storage	<p>Best to store at 40% charge in a cool place. Open terminal voltage cannot determine state-of-charge. 5 years and longer storage possible. Prime battery if stored longer than 6 months.</p>	<p>Store at 40% charge in a cool place. Open terminal voltage cannot determine state-of-charge. Prime battery if stored longer than 6 months.</p>	<p>Store at 40% charge in a cool place (40% state-of-charge reads 3.75-3.80V/cell at open terminal. Do not store at full charge and at warm temperatures because of accelerated aging.</p>	<p>Store always at a full state-of-charge. Do not store below 2.10V/cell; apply topping charge every 6 months.</p>
Disposal	<p>Do not dispose; contains toxic metals; must be recycled.</p>	<p>Should be recycled. Low volume household NiMH may be disposed.</p>	<p>Should be recycled. Low volume household Li-ion may be disposed</p>	<p>Do not dispose; must be recycled.</p>