

## Structural-related Items

- **Active Material**

The electro-chemical materials of the electrodes. In rechargeable Ni-MH battery, nickel-hydroxide is the active material of the positive electrode and hydrogen-absorbing alloy is the active material of the negative electrode.

- **Cell**

Each of the individual batteries which comprise a rechargeable battery.

- **Electrolyte**

The medium through which ions are conducted during the electro-chemical reaction inside a rechargeable battery. In rechargeable Ni-MH battery, a potassium hydroxide water solution is generally used as the electrolyte.

- **Hydrogen-absorbing Alloy**

Alloy which can absorb/release hydrogen reversibly. AB<sub>5</sub> or AB<sub>2</sub> type alloy is used for batteries. (MmNi<sub>5</sub>) AB<sub>5</sub> type is employed in Panasonic's products.

- **Negative Electrode**

The electrode that has a lower electrical potential than the positive electrode to which electrical current flows from the external circuit during the discharge of a storage battery.

- **Nickel Oxyhydroxide**

Expressed in chemical notation as NiOOH, this indicates that the positive electrode material of the Ni-MH battery is in a charged state. When in the discharged state, the positive electrode material becomes nickel hydroxide, or Ni(OH)<sub>2</sub>.

- **Pasted Type Electrode Plate**

An electrode plate made by applying the active material (hydrogen-absorbing compound) in a paste form onto a nickel-plated steel porous plate. Used as the negative electrode.

- **Positive Electrode**

The positive electrode that has a higher electrical potential than the negative electrode from which electrical current flows to the external circuit during the discharge of a rechargeable battery.

- **Safety Vent**

Functions to release the gas when the internal pressure exceeds a predetermined level. In addition to preventing the absorption of external air into the rechargeable battery, this vent also prevents the rupture of the rechargeable battery that would result from the increase in the internal pressure caused by the generation of gas during charge or at other times.

- **Separator**

A porous or micro-porous thin plate, cloth, bar, or frame which is inserted as a spacer between the positive and negative electrode plates for the purpose of preventing short-circuits. The separator must be non-oxidizing, resistant to chemicals, and be an electrical insulator, and it must not obstruct in any way the ionic conduction or diffusion of the electrolyte.

The separator also functions to retain the electrolyte.

## Electrical-related Terms

<ul style="list-style-type: none"> <li>● <b>Capacity</b> The electrical capacity of a rechargeable battery. Normally used to mean the capacity as measured in ampere-hours. Indicated in units of Ah (Ampere-hours) or C (coulombs).</li> <li>● <b>Charge Efficiency</b> A general term meaning either ampere-hour efficiency or watt-hour efficiency. More commonly used to mean ampere-hour efficiency.</li> <li>● <b>Charge Level</b> The amount of electricity used for charge. For constant current charge, it is the product of multiplying the current value by the charge time. Measured in units of ampere-hours (Ah).</li> <li>● <b>C (Coulomb)</b> Used to express the amount of the charge or discharge current. Expressed by attaching the current units to a numerical multiple that represents the rated capacity of the battery. The charge and discharge current are generally expressed using a C multiple. For example, for a battery having a rated capacity of 1500 mAh:  <math display="block">0.1CmA = 0.1 \times 1500 = 150 \text{ mA}</math> <math display="block">0.2CmA = 0.2 \times 1500 = 300 \text{ mA}</math> </li> <li>● <b>Cut-off Discharge Voltage</b> The voltage that indicates the limit at which discharge is completed. In practical use, this voltage is the limit to which the battery can be used.</li> <li>● <b>Electrolyte Leakage</b> The penetration of the electrolyte to the outside of the battery.</li> <li>● <b>Energy Density</b> The amount of energy that can be obtained per unit weight or per unit volume of a rechargeable battery. Unit: wh/kg, wh/l.</li> <li>● <b>Excessive Discharge</b> The discharge of a rechargeable battery to lower than the specified cut-off discharge voltage.</li> <li>● <b>High Rate Discharge</b> Discharge at a relatively large current with respect to the battery capacity. Also called high-efficiency discharge and high-current discharge.</li> <li>● <b>Nominal Voltage</b> The voltage used to indicate the battery voltage. Generally a value slightly lower than the electromotive force is used. For example, the nominal voltage of rechargeable Ni-MH batteries is 1.2 V per cell.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Open Circuit Voltage</b> The voltage of a battery when that battery is electrically cut-off from the external circuit.</li> <li>● <b>Overcharge Current</b> Charge after the fully charged state has been reached. In a rechargeable battery that requires water replenishment, the electrolysis of the water causes a sharp decrease in the amount of electrolyte. Generally, the overcharge of a rechargeable battery will shorten the battery's cycle life.</li> <li>● <b>Rapid Charge</b> Charge quickly using a large current.</li> <li>● <b>Rated Capacity</b> The standard value for the amount of electricity which can be obtained from the battery in a fully charged state at the specified temperature, discharge current, and cut-off discharge voltage. Measured in units of ampere-hours (Ah). Note that <math>C_N</math> is used as a symbol to express the rated capacity at a rate of N hours.</li> <li>● <b>Reverse Charge</b> Charge with the polarities reversed. If the polarities are reversed, all of the electrical energy will be used to generate gas.</li> <li>● <b>Self-discharge</b> A decrease in the capacity of a rechargeable battery without any discharge of current to the external circuit.</li> </ul>
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### Other Terms

- **Alkaline Storage Battery**  
A storage battery that uses an alkaline water solution as its electrolyte. Generally refers to nickel metal-hydride batteries and nickel-cadmium batteries.
- **Cycle Use**  
A method of use in which charge and discharge are repeated over and over again.
- **IEC Standards**  
The standards established by the International Electrotechnical Commission (IEC).  
For nickel-metal hydride batteries there is no standard so the standard for Ni-Cd batteries is generally used for the time being.