News Release

August 5th, 2008
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Commercialization of "eNi TIME" Cylindrical Ni-MH Battery Using the World's First Poly-Phase stacking Hydrogen Storage Alloy for the Negative Electrode, and Having Excellent Long-Term Storage Characteristics

GS Yuasa Corporation (President: Makoto Yoda) announced the commercialization of a cylindrical Ni-MH battery called "eNi TIME." This battery is the first in the world to practically implement our company's unique new poly-phase stacking hydrogen storage alloy, which offers high capacity and an excellent cost-performance ratio, as negative electrodes in Ni-MH (Nickel-Metal hydride) batteries. What is more, the battery has excellent long-term storage characteristics thanks to the use of this new alloy in its negative electrodes, thereby providing the same level of convenience as alkaline dry batteries.

Our group, GS Yuasa International Ltd. (President: Koichi Shiina, Head office: Minato-ku, Tokyo) plans to sell the eNi TIME abroad starting in FY2008, mostly in Taiwan, Hong Kong, and other parts of Asia, as the next-generation battery to replace primary dry batteries. Production will begin in September 2008 under a system to manufacture 100,000 cells/month at Yuasa (Tianjin) Technology Ltd., which is GS Yuasa International Ltd.'s locally incorporated company in China, located in Tianjin City's Economic Technological Development Area (TEDA).

From the perspectives of the environment and resource conservation, there is growing demand for secondary batteries that can be repeatedly recharged and reused, and especially for Ni-MH batteries because they in particular are interchangeable with alkaline dry batteries in consumer applications and are environmentally friendly. But because conventional Ni-MH batteries spontaneously lose their capacity rather quickly when stored after charging (a phenomenon called self-discharge), people need high-performance batteries which have the same convenience as alkaline dry batteries in that once charged, they can be used anytime, anywhere.

In response to society's needs, we previously commercialized the "CS Series" cylindrical Ni-MH batteries to replace alkaline batteries, or to provide the same convenience as alkaline dry batteries, but in consideration of the global environment, and with our goals being extremely low self-discharge and an excellent cost-performance ratio, we have developed and commercialized the eNi TIME cylindrical Ni-HM battery with even better performance. The battery's name combines "time" in "ready to use anytime," the "e" of "ecology," and the "Ni" of "Ni-MH."

Briefly described, by using our unique poly-phase stacking hydrogen storage alloy for the negative electrode, the eNi TIME battery has substantially improved the self-discharge characteristics over previous Ni-MH batteries, thereby providing the same level of convenience offered by alkaline dry batteries. And because the eNi TIME is interchangeable with alkaline batteries, consumers can use them in digital cameras, video game consoles, and other applications in which alkaline dry batteries have traditionally been used.

The poly-phase stacking hydrogen storage alloy, a world-first that was independently developed, is a rare earth-Mg-Ni-based hydrogen storage alloy that was brought into practical use on the basis of joint research over several years with the Kansai Center of the National Institute of Advanced Industrial Science and Technology (AIST) (Tetsuo Sakai, Leader of Collaborative Research Team of Secondary, Research Institute for Ubiquitous Energy Devices). A new phase that is different from the usual single

phase is the main phase. The battery has a crystal structure in which different phases are in continuous layers, its elemental constituents are optimized, and its phase structure is controlled on the nano level. As a result, it stabilizes its crystal structure, mitigates its crystal distortion in absorbing and desorbing hydrogen, increases its amount in hydrogen absorption, and achieves a high capacity of 350 mAh/g, which represents a 20% improvement over our previous products.

Because the prices of rare earths and rare metals are skyrocketing, we improved the cost-performance ratio and stabilized costs by using La and other light rare earth elements as the main constituents in our new alloy, and by not using Co and Mn, which were essential to previous alloys.

Further, there is no dissolution of Co and Mn from the hydrogen storage alloy negative electrodes, which is held to be one cause of capacity decline during long-term storage. An advantage of Ni-MH batteries using the new alloy is their superior long-term storage characteristics.

Overview of the eNi TIME

1. Exceptional Convenience (Can be put to immediate use, any time)
   By using our unique poly-phase stacking hydrogen storage alloy and combining the electrode technologies we have developed to date, we substantially mitigated battery self-discharge. After charging to 100% and storing for three months at the high temperature of 45°C, the battery has at least 70% remaining capacity (AA battery, GS Yuasa measurements).
   After one year at 20°C the battery has 85% residual capacity (according to a simulation by us), demonstrating that the battery is exceptionally convenient because once charged it can be used immediately, and at any time.

2. High Power
   Just like previous Ni-MH batteries, the eNi TIME is an excellent power source for large-current discharge and low-temperature use, at which primary dry batteries do poorly. It is capable of about 65% discharge even at the low temperature of -10°C (AA battery, GS Yuasa measurements).

3. Reliability
   The eNi TIME offers the same safety and reliability as previous Ni-MH batteries.

4. Excellent Economy
   Because the battery can be recharged and used over and over again, it does not need to be replaced each time and then discarded, as with dry batteries, making it economical and eco-friendly. We have also provided for cost stability through such measures as adopting our unique negative electrode material as a battery material, which does not use Co or other rare metals.

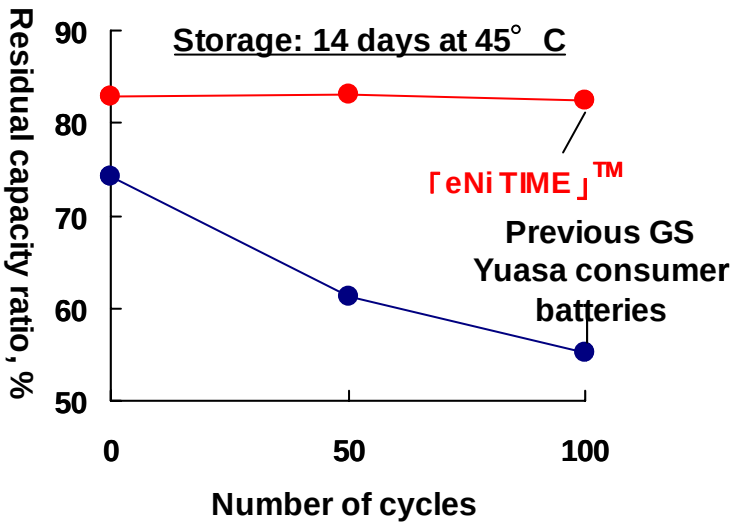
Overview of the Poly-Phase Stacking Hydrogen Storage Alloy

1. Eco-Friendliness and High Cost-Performance Ratio
   We endowed the battery's rare earth-Mg-Ni-based alloy with an unconventional poly-phase stacking structure (see attachment), giving the battery the high capacity of 350 mAh/g, an approximate 20% improvement over our own previous products, as well as superior low-temperature characteristics and high-rate discharge characteristics. This enabled us to reduce the amount of active material used, and make a Ni-MH battery that is eco-friendly and has a high cost-performance ratio.
   The cost-performance ratio is further raised by not using cobalt (Co).

2. Durability
   Control of the alloy's phase configuration on the nano level stabilizes the poly-phase stacking structure, and suppresses pulverization due to expansion and contraction when stored hydrogen is released. The alloy therefore has excellent cycle stability and durability.

3. Reliability
   The new alloy is designed to have lower hydrogen equilibrium pressure than our previous batteries, and it does not use Co or Mn. This enables us to make Ni-MH batteries with excellent long-term storage characteristics and high reliability.

Comparison of Storage Characteristics, after Charge-Discharge Cycling, of the eNi TIME and Previous GS Yuasa Batteries



Cycling conditions
Charging:
1 I_tA-d V=5 mV cutoff
Discharging:
1 I_tA, 1.0 V cutoff
Temp.: 20°C

Self-discharge test performed after every 50 cycles.

Storage conditions
14 days at 45°C

Specifications of the eNi TIME

Property	Ni-MH AA Battery	Ni-MH AAA Battery
Nominal voltage (V)	1.2	1.2
Full-charge capacity (mAh)	2100	800
Minimum capacity (mAh)	2000	730
Dimensions (mm)	Approx. dia. 14.5, height 50.5	Approx. dia. 10.5, height 44.5
Height (g)	Approx. 29	Approx. 12

Full-charge capacity: Average capacity of single cell when discharging at 0.2 I_tA after 16-hour charge at 0.1 I_tA.
Minimum capacity: Minimum capacity of single cell when discharging at 0.2 I_tA after 16-hour charge at 0.1 I_tA.

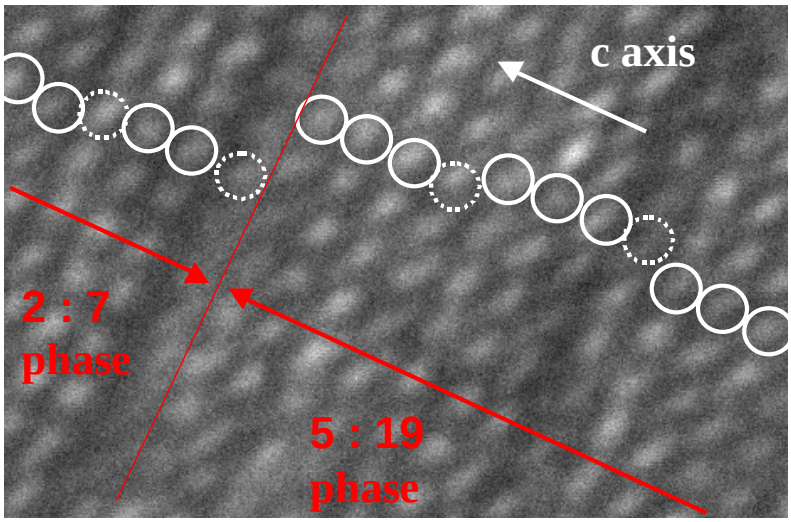
Overview of Yuasa (Tianjin) Technology Ltd.

1. Address	No. 99, Haitong Avenue, Export Processing Zone, TEDA, Tianjin, P. R. China
2. Founding	August 5th, 1997 (began operating August, 1997)
3. Capital stock and Investors	1260 million yen (US$12 million)
	GS Yuasa International Co., Ltd., 99.5% Others, 0.5%
4. Executives	Chairman: Noboru Kitamura (Director, GS Yuasa Corporation) President: Hiroshi Nakamura (GS Yuasa International Co., Ltd.)
5. Number of employees	1,400
6. Site size	40,000 m^2
7. Building area	20,000 m^2
8. Business	Manufacturing of Ni-MH batteries (AA and AAA)
9. Production scale	10 million cells/month

Photo. “eNi TIME” Cylindrical Ni-MH AA Batteries

Attachment: About the Poly-Phase Stacking Crystal Structure

1. Transmission electron microscope image showing the lattice of the rare earth-Mg-Ni-based poly-phase stacking alloy



2. Crystal structure of the main phase (A5B19 phase) of the poly-phase stacking alloy