News Release

November 8th, 2012

GS Yuasa Corporation

GS Yuasa Develops Lithium-ion Battery Technology for Plug-in Hybrid Electric Vehicles

- Lithium-ion battery enhanced with new positive electrode formulation -

GS Yuasa Corporation (Tokyo Stock Exchange: 6674) announced today that it has developed lithium-ion battery technology for next-generation plug-in hybrid electric vehicles (PHEV). This technology was developed by GS Yuasa having been commissioned by the New Energy and Industrial Technology Development Organization (NEDO) to participate in a program launched in 2007 to create lithium-ion battery technologies for PHEV (Li-ion and Excellent Advanced Batteries Development (Li-EAD) Project[*1]). The new technology combines a three-component positive electrode[*2] found in conventional HEV lithium-ion batteries with small quantities of lithium iron phosphate[*3] to improve output performance and battery life under low state of charge (SOC) conditions.

PHEV operate as electric vehicles (EV) when there is sufficient battery capacity and as hybrid electric vehicles (HEV) under low SOC conditions when battery capacity is depleted. In practical use, PHEV are meant to be charged at night and the battery maintained at a high SOC for a long period of time. Maintaining the battery at a high SOC, however, reduces the life of a lithium-ion battery. PHEV batteries therefore require the capability of maintaining high SOC for a long period of time without sacrificing battery performance.

GS Yuasa's technology represents the first step to developing technological solutions for PHEV batteries. GS Yuasa will continue to enhance the technology while conducting long-term evaluations to determine the challenges to commercialization.

*1: A project to develop high-performance, low-cost secondary batteries and related technologies in support of the early commercialization of next-generation vehicles (PHEV, EV, FCV, etc.).
*2: Positive electrode component, expressed by the formula $LiNi_xMn_yCo_zO_2(x+y+z=1)$, which offers a balance of energy density, output density, longevity, safety and other characteristics.
*3: Positive electrode component, expressed by the formula $LiFePO_4$, which offers superior safety and longevity notwithstanding its low reversible potential.

This technology will be presented at the 56th Battery Symposium in Japan (sponsor: The Electrochemical Society of Japan, the Committee of Battery Technology) scheduled to be held at the Hilton Fukuoka Sea Hawk Hotel from November 14 to 16.

Specifications of 13Ah lithium-ion battery utilizing the new technology

Nominal voltage (V)		3.6
Capacity (Ah)		13.0
Dimensions(mm)	Length	112
	Width	21
	Height	81
Weight (g)		365

Image of 13Ah composite positive electrode lithium-ion battery utilizing the new technology

This technology was developed by GS Yuasa having been commissioned by the New Energy and Industrial Technology Development Organization (NEDO) to participate in the project for the Development of a High-Performance Battery System for Next-Generation Vehicles launched in 2007. GS Yuasa wishes to express its sincere gratitude to everyone involved in the project.