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Trojan Battery Launches Smart Carbon™ Line of Advanced Lead Acid Batteries

Smart Carbon Designed to Improve Battery Performance in Partial State of Charge

SANTA FE SPRINGS, Calif., Jan. 16, 2014 – To address the impact of Partial State of Charge (PSOC) on cycling batteries in renewable energy (RE), inverter backup and telecom applications, Trojan Battery Co. today announced the addition of Smart Carbon™ as a standard feature to its Industrial and Premium flooded battery lines.

Smart Carbon is a proprietary Trojan formula which provides improved performance when the batteries operate in PSOC, enhancing overall battery life in off-grid and unstable grid applications where the batteries are under charged on a regular basis. Along with increased life in a partial state of charge, Trojan's Smart Carbon proprietary formula also provides improved charge acceptance and faster recharge in PSOC applications.

As the world's leading manufacturer of deep-cycle batteries, Trojan understands that batteries used in harsh RE, telecom and inverter backup systems are regularly cycled at PSOC due to the intermittency of solar generation, an unstable grid or to minimize operating costs of a hybrid Charge-Discharge-Cycle (CDC) system. Operating at PSOC can quickly diminish the overall life of a lead acid battery, which results in frequent and costly battery replacements. With batteries now being one of the most expensive components of these systems, it is critical to maximize the life of the battery bank in order to reduce total cost of ownership. To address the issue of PSOC, Trojan's engineering team developed the Smart Carbon advanced lead acid formula to enhance life and performance of Trojan batteries operating in PSOC.

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"Trojan Battery is the first manufacturer to introduce a carbon additive as a standard feature in its deep-cycle flooded batteries used in RE, inverter backup and telecom applications. Trojan's engineering team has spent more than five years in research and development experimenting with many types of carbon to ensure the right formula to successfully address PSOC," said Bryan Godber, senior vice president of global market development at Trojan Battery. "While most carbon additive research has focused on VRLA batteries for start-stop automotive applications, Trojan's focus has been on the addition of carbon to deep-cycle flooded batteries for stationary applications in off-grid and unstable grid locations. Trojan is committed to these market segments and will continue to be an innovative leader in the energy storage space."

Trojan chose to add Smart Carbon first to its deep-cycle flooded batteries because flooded technology is the most widely used in off-grid and unstable grid applications globally due to its cycling performance, ability to withstand harsh conditions, widespread availability and economical price point.

Challenges of Partial State of Charge

PSOC is a reality for most **off-grid and unstable grid RE systems** since solar panels used in these applications are frequently undersized, resulting in the consistent undercharging of the battery bank. The same is true due to intermittent weather conditions or placement of solar panels in shady areas, which affect the solar panels' ability to collect and store enough energy to fully recharge batteries.

PSOC also is common in **inverter backup systems** where batteries are used when the grid goes down. Because the grid in many regions of the world goes down several times a day, or is only available a few hours a day, deep-cycle batteries are under charged on a regular basis, resulting in diminished life of the battery.

Telecom applications which operate off-grid, rely on an unstable grid, or depend on a hybrid RE/battery CDC system for power face the same PSOC issues as does solar. The same is true for hybrid telecom applications that are powered by diesel generators, which serve as the main charging source for the battery bank. In many diesel generator installations, the system is often set up to leave the batteries in a partial state of charge in order to minimize fuel costs, once again resulting in batteries operating in PSOC conditions and shortening the life of the battery bank.

Availability and Pricing

Trojan's Industrial and Premium lines of deep-cycle batteries featuring Smart Carbon are now available. Customers can contact their local Trojan Battery distributor or dealer for pricing in their area.

About Trojan Battery Company

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Trojan Battery Company is the world's leading manufacturer of deep-cycle batteries, offering a complete portfolio of technologically-advanced deep-cycle flooded, AGM and gel batteries that provide maximum long-lasting performance to meet the requirements of today's advancing renewable energy systems. Trojan Battery Company, founded in 1925, is ISO 9001:2008 certified with U.S.-based operations in California and Georgia. For more information, visit www.trojanbatteryRE.com

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