



News Release

Ashland brings Soterastm CCS separator binder to Battery Japan 2017

Tokyo, Japan, February 27, 2017 - The growing market for electric and hybrid vehicles creates an ever-growing need for safer, longer-lasting batteries. Ashland is committed to putting science and chemistry together to provide solutions to these challenges. To this end, Ashland is featuring its Soterastm CCS separator binder at Battery Japan 2017. The show takes place March 1-3 in Tokyo. Ashland is at booth E40-2.

"Ashland is always solving. Most recently we have commercialized materials that ensure greater battery integrity with higher-energy storage. Ultimately, we've helped increase battery capacity and driving range while also making the batteries safer for their intended use," said Suzanne Rowland, vice president, Industrial Specialties, Ashland. "Ashland's novel products and technical processes are increasing the efficacy of lithium-ion batteries which are being intensively developed worldwide."

Soterastm CCS binder is a unique binder that allows effective ceramic coating of both polyethylene (PE) and polypropylene (PP) separators to reduce film shrinkage during thermal stress. It is a two-component system compatible with typical coating processes. Through a unique cross-linking mechanism, Soterastm CCS binder delivers improved thermal and mechanical stability while having minimal solubility in electrolyte.

"Lithium-ion batteries have become the chosen technology for energy storage for consumer electronics, electric vehicles and mass storage. Users are demanding higher capacities and improved safety and performance," said Dr. Robert Gibbison, global segment leader, Performance Specialties, Ashland. "Soterastm products can help improve the usability of lithium-ion batteries, making them more suitable for broader applications by enabling improvements in energy density and cell safety. In this way we're helping manufacturers become more profitable."

Soterastm CCS binder is the second product in the Soterastm line. In 2016, Ashland introduced Soterastm MSi binder, which works in silicon-based battery systems to delivery up to 30 percent longer cycle life.

"Asia Pacific is at the forefront of the lithium-ion battery market due to its high adoption rate of consumer electronics and electric vehicles," said Jay Lim, business director, Industrial Specialties, Ashland, Rest of Asia. "Ashland is leveraging its broad expertise in specialty ingredients, especially water-soluble polymers, to feed its global research and development efforts. This allows us to bring resources to battery

producers in the region to help them develop innovative materials and technologies.”

About Ashland

Ashland Global Holdings Inc. (NYSE: ASH) is a premier global specialty chemicals company serving customers in a wide range of consumer and industrial markets, including adhesives, architectural coatings, automotive, construction, energy, food and beverage, personal care and pharmaceutical. At Ashland, we are 6,000 passionate, tenacious solvers - from renowned scientists and research chemists to talented engineers and plant operators - who thrive on developing practical, innovative and elegant solutions to complex problems for customers in more than 100 countries. Ashland also maintains a controlling interest in Valvoline Inc. (NYSE: VVV), a premium consumer-branded lubricant supplier. Visit ashland.com to learn more.

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