Microporous

BATTERY SEPARATORS

Microporous Silica for Lead-Acid Battery Separator Applications

In 1985, PPG introduced HI-SIL® SBG silica, which quickly became the industry-standard precipitated silica for lead-acid battery separators. While that product remains a proven workhorse, PPG has continually expanded its commitment to being the world's leading supplier of precipitated silica for microporous battery separator applications.

Over the years, this has resulted in the development and commercialization of many increasingly advanced silica products to meet the evolving performance requirements of battery separator manufacturers.

Today, PPG produces several different grades of *Hi-Sil* silica products for polymer-based microporous battery separators, providing manufacturers with a range of products that enable them to lower electrical resistance, increase puncture resistance, improve separator manufacturability and achieve other performance benchmarks.

Hi-Sil Silica Products for Microporous Battery Separators

Product	DBP Oil Absorption (mL/100g)	N_2 (BET-5) Surface Area (m^2/g)	pH	Apparent Tamped Density (g/L)	Particle Size* (µm)
Hi-Sil SBG	200	145	6.9	150	15
Hi-Sil WB10	210	150	7.0	150	17
Hi-Sil WB10-D	225	180	6.9	180	25
Hi-Sil WB2085	255	180	6.3	N/A	45
Hi-Sil WB2085-D	275	180	6.3	170	45

**Median particle size by laser diffraction*

Dedicated Battery Separator Knowledge and Support

Research and technological advancement among auto manufacturers and their suppliers is focused on increasing vehicle fuel efficiency and environmental sustainability. This has, in turn, provided impetus for improvements in the performance of battery systems and materials, including battery separators, where the drive is on to augment the performance of conventional Starting, Lighting and Ignition (SLI)) lead-acid batteries and to advance a new generation of batteries to power micro-hybrid, hybrid, and electric vehicles.

PPG supports battery separator manufacturers with a dedicated research team that combines extensive expertise in silica design, materials science, and microporous polymer membrane formulation and processing with an advanced understanding of battery design and engineering principles.

PPG supports these efforts through a global technical customer service infrastructure that incorporates state-of-the-art analytical, diagnostic and testing capabilities as well as a special pilot plant extrusion facility for microporous sheet applications.

These tools, together with an extensive technical knowledge base, enable PPG to collaborate with customers globally to meet the industry's most urgent challenges, from improving conventional lead-acid batteries to advancing Enhanced Flooded Batteries (EFB) for Idle-Stop-Start (ISS) and micro-hybrid automotive powertrain systems.

The PPG research and development team is also committed to exploring the role precipitated silica products can play in other emerging energy technologies.

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