



“Flames and Smoke Don’t Like Us”

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# Huber Launches Vertex<sup>®</sup> 100 SV Surface-Treated Magnesium Hydroxide is Designed for EVA-Based Compounds

Huber Engineered Materials is launching a product specifically designed to boost flame retardant (FR) properties of filled polymers. Vertex<sup>®</sup> 100 SV is a surface treated magnesium hydroxide grade (MDH) specifically formulated to improve FR properties on ethylene vinyl acetate co-polymers (EVA.) Flame retardant EVA compounds are primarily used in wire and cable applications. Surface-treated magnesium hydroxide grades bring multiple benefits to polymer applications, including:

- Improved processability (higher throughput rates)
- Better electrical and physical properties
- Improved fire retardancy

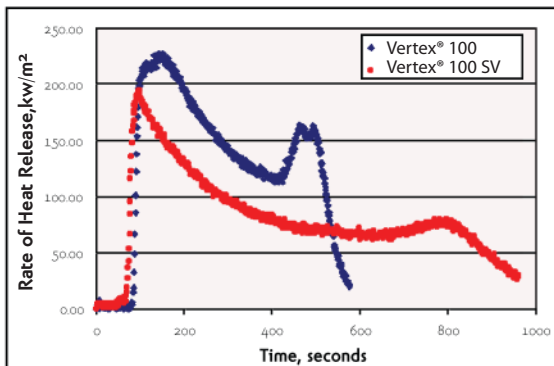
Most surface treatments also improve flame retardancy of a compound indirectly through better, more uniform dispersion of the MDH particles in the polymer matrix. Until now, surface treatments capable of directly enhancing flame retardancy were not available.



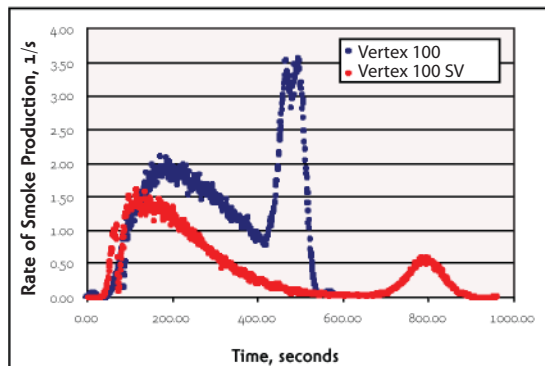
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Vertex® 100 SV surface treatments significantly reduce the rate of heat release and rate of smoke production compared to untreated magnesium hydroxide (see graphs below). Simultaneously, this surface treatment significantly increases the limiting oxygen index (LOI), indicating reduced flammability of the EVA compound (see table 1 at bottom of page).

### Rate of Heat Release



### Rate of Smoke Production



The graphs above illustrate the effect of a Vertex® 100 SV surface treatment on fire performance of an EVA-based compound containing 64% of magnesium hydroxide (measured by cone calorimeter). SV surface treatment brings about a significant reduction of the rate of heat release and the rate of smoke production. The blue line represents untreated Vertex 100; the red line, surface-treated Vertex® 100 SV.

The enhanced FR as enabled by a Vertex 100 SV treatment (see Table 1 below) creates an opportunity for lowering the magnesium hydroxide loading level in a compound. Huber data shows that an EVA-based compound containing 56% of Vertex 100 SV has the same LOI value as an EVA compound containing 64% of untreated Vertex 100. Loading level reduction leads to better physical properties of the compound, including low temperature brittleness.

Vertex 100 SV is recommended for use in applications where low smoke generation is important, such as EVA-based wire and cable compounds and interior construction materials (e.g., fire retardant partition boards). Vertex 100 SV can also be used in other polymer systems, such as EPDM, polypropylene and silicone elastomers, where it will benefit mechanical properties, low temperature properties and water resistance.

FR Property	Vertex® 100	Vertex® 100 SV	% Improvement by SV Treatment
Ave. SEA, m2/kg	240.1	128.1	47% Reduction
LOI, %	38	44	16% Improvement
UL-94 (1/16")	V-0	V-0	Maintained

Table 1: The effect of a Vertex 100 SV surface treatment on FR performance of an EVA-based compound containing Vertex 100 magnesium hydroxide (64%).

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