

Techmer PM Introduces Three New Non-Halogenated Flame Retardants

Partly in response to last year's new U.S. Consumer Product Safety Commission flammability standard for foam mattresses and CPSC's upcoming standard for upholstered furniture, Techmer PM has developed three new non-halogenated flame retardants for polyester and polyamide (nylon) fibers.

"The CPSC standards are going to prompt many mattress and furniture makers--and probably automotive OEMs too--to seek greater fire protection from fabric coverings, instead of new foam additives, and that will mean more demand for FR [flame retardant] fibers," says Ebrahim Mor, Techmer PM's Vice President of Technology. "Our new non-halogenated FR products can help our fiber extrusion customers seize these new opportunities."

Techmer PM isn't ignoring the spread of regulations that ban certain brominated flame retardants in other plastic products as well. Two of the new flame retardants, designated PBM13396 and PBM12635, are also designed for use in PET films and moldings. In addition, another new non-halogenated polyamide FR--Techmer PM's fourth new offering, an improved PNM13319--is intended for injection molding and profile extrusion applications.

The polyester-based concentrates rely on the same proprietary flame retardant. While it enables finished products to pass UL-94 V-0 tests at 18% loading, Techmer PM cautions that its active ingredient will reduce the glass-transition and melting-point temperature of the host PET, PBT, or PTT resin. "How much depends on the loading," says Mr. Mor. "In general, for every 5% of FR loading, the processing temperature--a maximum of 285°C (545°F)--should be decreased by 3°-to-5°C (5°-10°F)."

In tests under the federal MVSS 302 specification for fabrics used in cars, trucks, buses, and other motor vehicles, fabrics protected with PBM13396 and PBM12635 "sailed through at a 10% letdown ratio in the fibers," adds Mr. Mor. Both FRs also satisfied the National Fire Protection Association's NFPA 701 standard for fabrics at an 18% letdown.

Mr. Mor is especially pleased with the nanoclay additive used in the two new non-halogenated polyamide FRs--PNM13649 for nylon fibers and film, and PNM13319 for injection molding. "Techmer PM's expertise in nano-scale polymer modifiers has been increasing rapidly, and our customers can look forward to the growing use of nanoclay, nanotubes, and other nano enhancers," he notes. "They'll deliver better performance and economic benefits not only to our customers but also their customers."

By adjusting the usage level, either polyamide flame retardant will meet UV-94 requirements for V-0, V-1, or V-2 rating. Techmer PM also tested nylon fabrics containing the new products under MVSS 302 and NFPA 701, and all tests concluded successfully at fiber loadings of at least 15%. Suggested letdowns range from 15% to



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20%. As usual, Techmer PM's engineering and technical experts stand ready to assist customers in determining optimum usage for specific applications.

Techmer PM is a major producer of value-added color and additive masterbatch for the plastics and fiber industries. The company has worldwide manufacturing capabilities focusing on high-performance applications where quality, technical support, and problem solving are critical.

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