



FLAME RETARDANT TEXTILES

Problem – Challenge

Polyamide 6 (PA6) is one of the most used polyamides. Application areas are industrial textiles in automobiles, aviation, carpets or ropes, but also in sports or leisure textiles. One major drawback is its high flammability and the fact that large quantities of toxic gases are released when it burns. Halogen free flame retardant PA6 is commercially not available because of the lack of a flame retardant additive which is compatible with PA6 thermal processing and does not affect PA6 mechanical properties.

Solution

Empa's laboratory of advanced fibers has a long-standing experience in the chemistry of flame retardant additives, with several patent protected compound series which are developed in collaboration with industry.

After a successful preliminary project backed by Innosuisse, Empa researchers teamed up with the company Litrax to ready a new flame-retardant additive called L11 for the market. L11, for which a patent application was filed in 2018, is halogen-free, drip-free, can be processed into granules for fiber production via melt extrusion with PA6, and shows outstanding flame-retardant properties (LOI of 32) without compromising the good mechanical properties of the fibers.

The approval procedure is currently in progress under the EU chemicals regulation REACH and due for completion this or next year. Then nothing else stands in the way of marketing the flame-retardant polyamide fibers.

