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NEW MATERIALS OBTAINED FROM BLENDING TECHNOLOGY FOR FIRE PROTECTION APPLICATIONS

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According to recent studies an average of 60,000 fire-fighters were injured every year only in the United States and from all those cases 126 are fatalities. Materials play a crucial role in human protection, in particular polymeric materials. However, due to their chemical composition polymers have very poor fire resistance and normally flame retardant additives need to be used increasing the production costs and decreasing their mechanical performance. High-performance polymer blends (HPPB) appear as an attractive solution to obtain outstanding properties into a single material. However, HPPB technology deals with issues related to the materials high costs, the lack of fundamental studies between polymers interaction and the degradation caused by the elevated processing temperatures. In one of our most recent work, author's aim to study blends obtained from three high-performance polymers and presents for the first time, the relationship between processing conditions, viscoelastic properties, interfacial tension, and composition with the morphology and final performance for this kind of systems. All blends were obtained from a conventional melt processing technique, and our next challenge is to take our work to an industrial processing scale.