

Effects of Boric Acid on Electrospun Sulfonated PEEK

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Abstract: A growing number of flying hours dictates an improved safety level of crew, staff, passengers, and valuable assets. Improved material usage in the interior, as well as the structure of the airplane, is crucial. Flame-resistant electrospun polymeric nanofiber usage may improve safety and the anticipated impacts in manufacturing the structural parts. When looking at aviation history, aircraft accidents are mainly followed by fire that causes losses of lives as well as valuable assets. Flammability in an aircraft is a prominent cause that might be prevented by proper usage of flame retardant electrospun fibers for aircraft interior. The objective of this research is to develop flame-resistant electrospun nanofibers, which can be incorporated with aircraft interiors as insulation materials. The plan for this experiment is to use the appropriate mixture of sulfonated PEEK, boric acid, and DMF to generate a flame-retardant nanofiber mat. This mat's mechanical and flame properties will then be tested through means of thermogravimetric analysis, water contact angle measuring, scanning electron microscopy, and flammability testing to understand how boric acid will impact the flame resistance of PEEK.

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