

S3.3.2 EFFECTS OF NUCLEATING AGENTS ON MORPHOLOGY, FILTRATION AND CHARGING PROPERTIES OF POLYPROPYLENE MELTBLOWN MEDIA

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Polymers containing nucleating agents normally exhibit higher rate of crystallization and lead to changes of crystalline structures and, improved electret, optical and physical properties. So use of nucleating agents would benefit filtration performance of electret filter. Filtration efficiency is highly dominated by the electret field strength of the fibrous media. In this regard, charge stability is very important since high initial charge density does not guarantee high charge stability. Application of nucleating agent leads to formation of small spherulites whose boundaries act as traps for space charges. Unlike some other additives, nucleating agents can be buried into crystallites where charge stability is better than the amorphous regions.

Meltblown polypropylene media with nucleating agents including highly efficient benzenetrisamide family were produced by meltblowing process. The effect of the nucleating agent on crystallization behavior, crystalline and meltblown web morphology and filtration properties and charging properties of the produced media was investigated.