Effect of ATH Based Flame Retardant Usage in Polyester Products

A. Murat Avcı (Entekno Ltd. Şti.), Tayfun Ozmen (Enno Ltd. Şti.), Oktay Uysal (Entekno Ltd. Şti.), Ender Suvacı (Anadolu Üniversitesi)

The use of polymeric materials has increased rapidly over the past decades such as polyvinylchloride (PVC), polystrene (PS) and polyester (PE). However, their flammability properties limit their function in various fields. In order to improve the flammability of the polymers additives are used in polymer industry. These additives are commonly known as flame retardants. Halogenated flame retardants are one of the flame retardant types used to impede the ignition of polymer and slow the spreading of fire. Antimonytrioxide is a widely used halogenated additive but other forms of antimony such as pentoxide and sodium antimonate are also used. This additives, however cause problems such as emission of corrosive, toxic and cloudy halogen gases during fire. On the other hand, using halogen-free flame retardants, such as aluminum trihydroxide (ATH), magnesium hydroxide (MDH), hydromagnesite or huntite is a safer way for human health. The availability and cost effectiveness, makes ATH an attractive choice of flame retardant. In this study, the effect of usage of inorganic flame retardant ATH which is produced in Turkey by ENTEKNO ltd. on the performance of flame retardancy, whiteness for polyester sheets was investigated. It has been shown that the particle size, chemical purity and whiteness of ATH play key role for flame retardancy in polyester applications.

Keywords: Aluminum trihydroxide, ATH, flame retardant, polyester, halogen-free, inorganic