

Preparation and characterization of a novel fire retardant using nanocomposite

Abstract

Polymer materials are ubiquitous in daily life. While polymers are often convenient and helpful, their properties often obscure the fire hazards they may pose. Therefore, it is of great significance in terms of safety to study the flame retardant properties of polymers while still maintaining their optimal performance. Two-dimension (2D) layered inorganic nanomaterials have aroused enormous research interests in developing multi-functional polymer nanocomposites in the past few decades. In this study, we mainly focused on the utilization of layered inorganic compounds to improve the flame retardancy of polymeric materials, Due to increases in product requirements in industry, including requirements for durability, mechanical properties, and environmental friendliness, it is imperative to develop a new generation of flame retardants. In recent years, the preparation of modified, two-dimensional nonmaterial and as flame retardants has attracted wide attention in the field [1]. According to National Crime Records Bureau (NCRB) Thirty-five Indians die in a fire incident daily in 2018. Most of Accident. A large portion of annual fires worldwide are related to polymer materials and metals [2]. Particularly, two-dimensional nonmaterial has attracted extensive attention in the field of flame retardant and smoke suppression due to their unique structure and properties [3]. Derived from those research, the combination of multiple methods and technologies including the catalyzing effect metal ion and the barrier effect of the layered compounds, are predicted to have a high probability to enhance char formation, restrain the release of combustible gases and improve the flame retardancy of polymeric materials [4].

References

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