THERMAL AND FIRE PERFORMANCE OF FLAME-RETARDED OF BROMINATED POLYETHYLENE WAX (WASTE) (BR-PE-WAX)

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ABSTRACT

Globally, fire retardants are needed to satisfy a multibillion dollar market. The most effective commercial fire retardants for reducing the flammability of polyolefins are halogen-containing compounds , with both bromine and chlorine being the most extensively used(1,2). In this project two new polymeric brominated polyethylene – Wax(PE-Wax)(waste) fire retardant was prepared ,from by product (waste) PE-Wax and HBr .The new polymeric fire retardants (Br-PE-Wax) was characterized by FTIR and the degree of bromination was determined . The efficiency of the new fire retardants was studied by measuring the thermal properties TGA, DSC and rate of burning. From the thermal study results as shown if the fig. and tables that the heat of combustion was decreased ,while heat of decomposing and char was increased with increasing percent of Br-PE-Was content.

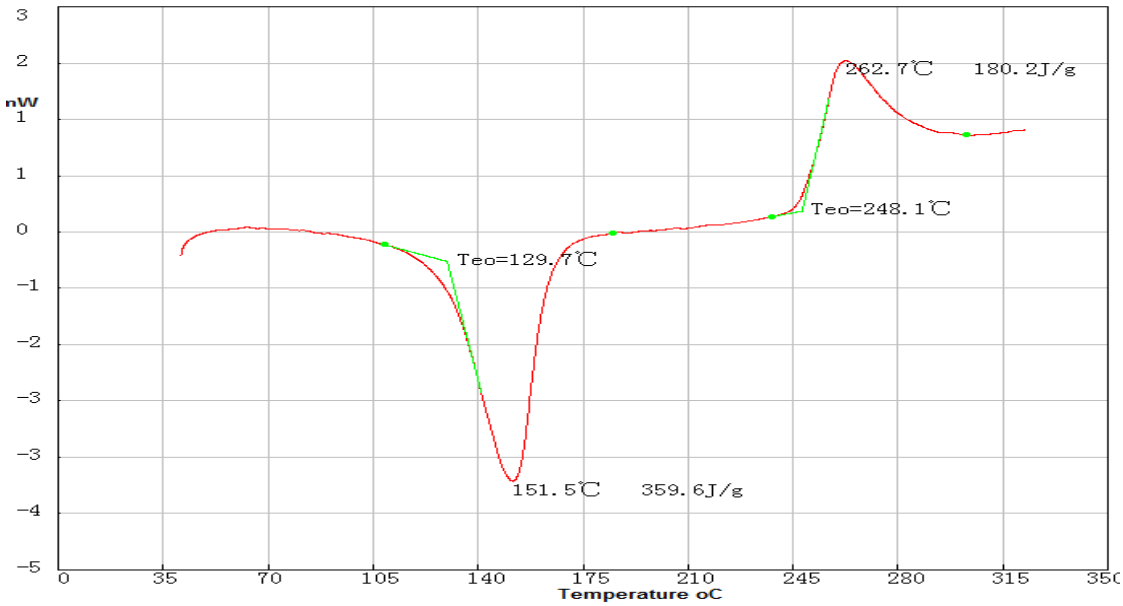

Fig. 1: DSC thermogram of HDPE containing 0.5% Br- PE-Wax