

WASTE MANAGEMENT OF FLAME RETARDANT TEXTILES: AN ALTERNATE END-OF-LIFE DESIGN FOR FLAME RETARDANT TEXTILE PRODUCTS

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The current understanding of flame retardant textile products disposed to solid waste management to be used as landfills or incineration poses ecological issues, for instance leaching of chemicals in landfills and decreased energy yield at incineration process. Incineration of textile products is thought to be an effective approach to cope with leaching of chemicals into land and water. However, apart from decreased energy yield, emission of toxic gasses from incineration of flame retardants is less talked about. It is essential to discover alternate end-of-life approaches for flame retardant textiles. Degradation or removal of flame retardant product from the textile product before ending to landfill or incinerators could be an eco-approach. This study demonstrates in-situ degradation of durable flame retardant product from the cotton fabric by advanced oxidation reaction (Fenton's reaction). A significant increase in energy yield at the end was observed.

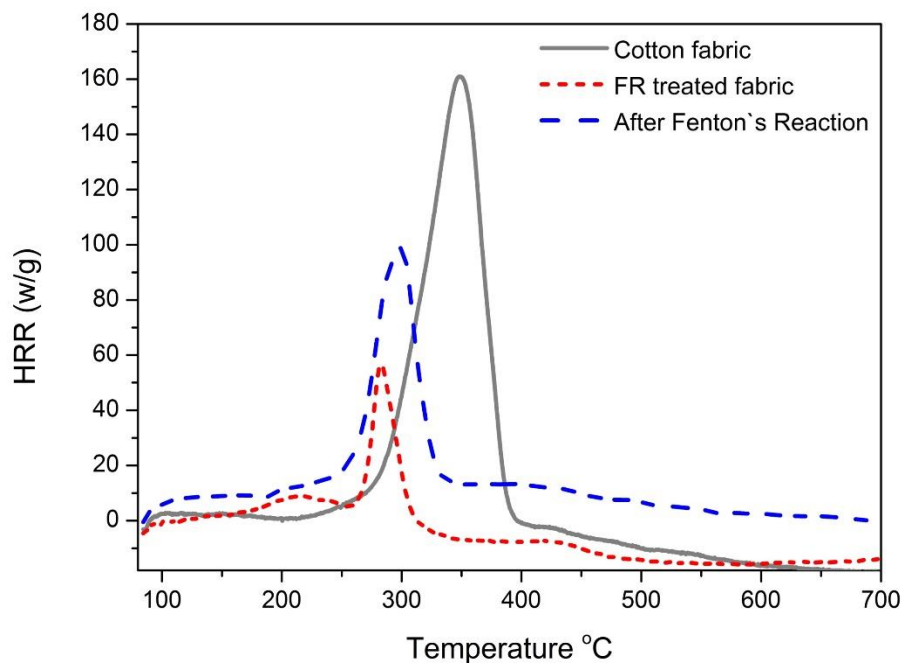


Fig. 1. Heat release curves of cotton fabric and FR treated fabrics before and after Fenton's reaction