

Kitti Phusanabenya 2011: An Experimental Study of Piloted Ignition and Burning Behavior of Plastic. Master of Engineering (Mechanical Engineering), Major Field: Mechanical Engineering, Department of Mechanical Engineering. Thesis Advisor: Assistant Professor Nathasak Boonmee, Ph.D. 202 pages.

This research presents an experimental study of pilot ignition and Burning Behavior of plastic commonly used in decoration. The experiments were carried out on the cone calorimeter according to the ASTM 1354 standard. The test samples were selected for 13 types of Plastic: PMMA (Polymethylmethacrylate) 3 mm thick, ABS (Acrylonitrile-butadiene-styrene) 3 mm thick, Acrylic 5 mm thick, PVC Floor Tiles 1.6 mm thick, HIPS (High impact polystyrene) 2 mm thick, Polycarbonate 4 mm thick, EVA Foam Sheet 15 mm thick, Polyethylene 1 mm thick, Plan Board 5 mm thick, Nylon 5 mm thick, Polypropylene 5 mm thick, Vinyl 0.5 mm thick and Polyethylene Foam 10 mm thick.

The research presents the piloted ignition properties of plastic: critical heat flux for piloted ignition, thermal inertia, burning flux, and piloted ignition temperature. Based on the critical heat flux for piloted ignition and ignition temperature, among the 13 types of plastic, PMMA and Acrylic has the highest rank in fire risk where the Polycarbonate has the lowest rank.

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Thesis Advisor's signature