Research Title: EFFECTS OF GATE TYPES AND INJECTION SPEEDS ON SHRINKAGE OF HIGH-DENSITY POLYETHYLENE FOR INJECTION MOLDING PARTS

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ABSTRACT

This research studied of the effect of gate types and injection speed on the shrinkage of high-density polyethylene for plastic injection molding part. The experiments were performed with two mathematical models of viscosity, cross model 2 and Power law model [1], to simulate and compare the shrinkage of plastic part by Moldex3D R10 program following the ASTM D955-08. The film gate, fan gate, and edge gate were designed with the criteria of the same cross section area. The injection speeds were set as 0.14, 0.26, 0.5, 1, 2.5, 5 and 10 sec. The results showed that when using the fan gate, the shrinkage was highest. The percentage of shrinkage when using edge gate was higher than using the fan gate. Moreover, the simulation of the shrinkage from cross model 2 was higher when compared with the power law model. The all results were acceptable when compared with the shrinkage of plastic part by injection molding machine [2]

Keywords : shrinkage, gat e, high density polyethylene

กิตติกรรมประกาศ

ผู้วิจัยขอขอบคุณนายพิชัย เล็กโล่ง ที่ได้ให้ความช่วยเหลือในระหว่างการวิจัยทั้งการทดลอง การเก็บข้อมูล รวมถึงการจัดหาอุปกรณ์สำหรับการวิจัยและการวิจัยครั้งนี้ได้รับทุนสนับสนุนการวิจัยจากสถาบัน