

Thermal, chemical and mechanical property evaluation of recycled-reprocessed high density polyethylene. Ahmed, N.; Khan, J. H.; Hussain, I.; Hamid, S. H.. Center for Refining and Petrochemicals, Research Institute, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. Journal of Polymer Materials (1999), 16(4), 341-345. Publisher: Oxford & IBH Publishing Co. Pvt. Ltd., CODEN: JOPME8 ISSN: 0970-0838. Journal written in English. CAN 132:195135 AN 2000:70445 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

Abstract

Plastic recycling was carried out on the virgin HDPE, collected recycled HDPE material, and the mixt. of both. Processing aids in terms of certain percentages of anti-oxidants and slipping agents were added to virgin HDPE and the 50/50 mixt. of fresh HDPE and recycled HDPE material. The specific emphasis was placed on the thermooxidative degrdn. of material during processing cycle. The performance of resulting reprocessed plastics was monitored using Fourier transform infra-red (FTIR), differential scanning calorimeter (DSC), and study of mech. properties. The results clearly reveal the rapid thermooxidative degrdn. of the 50/50 mixt. of fresh and recycled HDPE material, which can be attributed to the antagonistic mixing effect of two materials and the early loss of added anti-oxidants and processing stabilizers. The better processing stability can be achieved by incorporating appropriate percentages of processing stabilizers in the polymer resin.