

The Effect of Irgafos 168 in the Thermostabilization of High Density Polyethylene

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Abstract : The thermostabilization of High Density Polyethylene (HDPE) is realized through the action of primary antioxidant such as phenolic antioxidants and secondary antioxidants as aryl phosphates. The efficiency of two secondary antioxidants, commercially named Irgafos 168 and Weston 399, was investigated using different physical, mechanical, spectroscopic, and calorimetric methods. The effect of both antioxidants on the processing stability and long term stability of HDPE produced in Ras Lanuf oil and gas processing Company were measured and compared. The combination of Irgafos 168 with Irganox 1010, as used in smaller concentration, results in a synergetic effect against thermo-oxidation and protect better than the combination of Weston 399 with Irganox 1010 against the colour change at processing temperature and during long term oxidation process.

Keywords : thermostabilization, high density polyethylene, primary antioxidant, phenolic antioxidant, Irgafos 168, Irganox 1010, Weston 399

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