

Physico-chemical analysis of two copolymers used as viscosity improvers for SAE 10W mineral oil

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Abstract. Two copolymers available on the market were characterised using FTIR spectroscopy, thermogravimetric differential thermal analysis (TG-DTA), and the differential scanning calorimetry (DSC). The aim of these analyses was to demonstrate that SAE 10W mineral oil viscosity was improved using hydrogenated poly (isoprene-co-styrene) (Infieum UK LIMITED) – trade name INFINEUM SV 260 and poly (ethylene-co-propylene) (DSM Elastomers Europe B.V.) – trade name KELTAN 4200. The DSC curve evaluates the temperature of the glass transition. The TG and DTA thermograms evaluate the heat resistance and the kinetic parameters of the two copolymers. These parameters were determined using the method of multilinear regression.

Keywords: DSC, kinetic analysis, multilinear regression, TG-DTA, FTIR
