

Study of Fluidity and Transition Phenomena of Lubricating Oils and Greases by Torsional Braid Analysis

by

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Abstract

In this paper, it has been tried that a torsional braid analysis (TBA) is applied as a testing method for examining the fluidity and transition phenomena of lubricating oils and greases. As a sample, lubricating oils, greases, and some reference samples were employed. Viscoelastic properties of these samples were measured in the wide temperature range. From these results, temperature dependence curves of logarithmic decrements and those of relative rigidities of the samples were obtained, and then the fluidity and transition phenomena of samples were examined. It is found that as a result of examining, mineral oil has two transition points, and that the fluidity and transition phenomena of greases are greatly influenced by those of their base oil. All results show that it is clarified that the method of TBA is effective for the examination of Fluidity and transition phenomena of lubricating oils and greases.

Keywords: Fluidity, Transition Phenomena, Viscoelastic property, Lubricating oil, Grease

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