

INVESTIGATION OF THE RHEOLOGICAL PROPERTIES OF ASPHALT BINDER MODIFIED WITH SASOBIT

M. Hasaninia & M. Molayem

Department of Civil Engineering, Iran University of Science and Technology (IUST), Narmak, Tehran, Iran

M. Ameri

Chief Executive Officer of Center of Excellence of PMS, Safety and Transportation, IUST, Narmak, Tehran, Iran

R. Dourandish

Department of Civil Engineering, Payame Noor University, Shemiranat, Tehran, Iran

ABSTRACT

In order to reduce the creation of greenhouse gases in asphalt mixture production, many additives are used to lower the temperature of asphalt mixture production processes. Sasobit is a common additive that besides lowering the production temperature, can contribute to improving performance characteristics of the asphalt binder. The present study investigates the rheological properties of asphalt binders modified with Sasobit via frequency sweep, multiple stress creep and recovery, temperature sweep and viscosity tests. The Sasobit was added to the original binder at 1 and 2% by weight of binder. This additive increased the percentage of recovered strain (R_{diff}) of the binder and decreased the binder susceptibility against the shear stresses. The modified binders have lower phase angle (δ) and higher shear modulus (G^*) and viscosity at 60°C. However, the values of phase angle in modified binders have different trends in the frequency sweep test.