Viscosity and *pvT* Characterization, Modeling and Prediction, for the Full Range of Reservoir Oils and Blends

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Viscosity and density are thermophysical properties required in many applications within the petroleum industry. The friction theory (FT) approach can accurately model the viscosity and density of a wide variety of reservoir fluids ranging from natural gas to heavy oil. The approach consists of a compositional characterization method (based on a probability density function), an applicable Equation of State (EoS) (such as a cubic EoS), and an EoS based FT viscosity model. The combination of these three methods delivers an integrated approach for the accurate description of the phase, *pvT,* and viscosity behavior of reservoir fluids within the full range of operational conditions (from reservoir to ambient conditions, including distillation). In this work, we explore the prediction capabilities of the approach as derived from minimum information. The aim of this study goes beyond just an accurate modeling of the fluids, whose feasibility has been already well established, but rather into a tool for prediction as well as quality assurance. Discrepancies between different laboratories, as a consequence of measuring properties such as viscosity using inappropriate devices, is a recurrent problem. It is, therefore, of value to have a tool that can provide some level of certainty in the prediction of a property, such as viscosity, for the petroleum industry.