

## Slugging Frequency Correlation for High Viscosity Oil-Gas Flow in Horizontal Pipeline

**Authors :** B. Y. Danjuma, A. Archibong-Eso, Aliyu M. Aliyu, H. Yeung

**Abstract :** In this experimental investigation, a new data for slugging frequency for high viscosity oil-gas flow are reported. Scale experiments were carried out using a mixture of air and mineral oil as the liquid phase in a 17 m long horizontal pipe with 0.0762 ID. The data set was acquired using two high-speed Gamma Densitometers at a data acquisition frequency of 250 Hz over a time interval of 30 seconds. For the range of flow conditions investigated, increase in liquid oil viscosity was observed to strongly influence the slug frequency. A comparison of the present data with prediction models available in the literature revealed huge discrepancies. A new correlation incorporating the effect of viscosity on slug frequency has been proposed for the horizontal flow, which represents the main contribution of this work.

**Keywords :** gamma densitometer, flow pattern, pressure gradient, slug frequency

**Conference Title :** ICCEE 2016 : International Conference on Chemical and Environmental Engineering

**Conference Location :** Zurich, Switzerland

**Conference Dates :** January 12-13, 2016