

ABSTRACT

Steam Distillation of Trinidad Crude Oils

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Steam distillation experiments were performed on Trinidad crudes so as to generate data for model testing. These experiments were performed in an 'open' 91 cm long, 3.81 cm diameter cell. Six (6) crude samples having API gravity in the range 11.6° to 30.6° API were distilled using saturated steam at pressures ranging from 0.101 to 4.654 MPa and steam temperatures from 100-260°C. The results obtained were tabulated and displayed graphically for comparison.

The results show that for the same sample steam distillation yield increases significantly with increasing saturated steam conditions. Furthermore, for the same saturated steam conditions, steam distillation yield increased with increasing API gravity. Although steam distillation yield correlated well with steam distillation factor, it cannot be correlated with API gravity because of differences in crude type which affect the distillation process.

True Boiling Point (TBP) data were applied with the

methods by RHEE and DOSCHER and WU and LANGHOFF to test for suitability in predicting the steam distillation yield for Trinidad crudes. The method by RHEE and DOSCHER gave predictions with an average deviation from experimentally determined values of less than 13 percent. The method by WU and LANGHOFF gave errors greater than 20%. This method was modified in an effort to better the accuracy obtained by RHEE and DOSCHER's method. However, an average deviation of less than 10 percent was possible.

Although the method by RHEE and DOSCHER is suitable for predicting the steam distillation yield of Trinidad crudes, the modified method is more accurate for steam distillation factors greater than 0.5.

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