Pengaruh biopolimer xanthan gum terhadap koefisien gesek aliran dalam pipa spiral diameter 25 mm = The effect of biopolymer xanthan gum towards liquid s coefficient of friction in spiral pipe with a diameter of 25 mm

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Abstrak

Pengurangan hambatan biopolimer xanthan gum dalam larutan air telah dipelajari sebagai fungsi konsentrasi dengan menggunakan pipa spiral. Percobaan dilakukan dengan mengukur pressure drop. Tujuan penelitian ini untuk meneliti pressure drop dalam pipa spiral dengan penambahan konsentrasi xanthan gum dalam larutan air.

Pipa Spiral dengan berdiameter 25 mm digunakan dalam penelitian ini dengan variasi larutan xanthan gum konsentrasi 150 ppm, 250 ppm dan 350 ppm. Percobaan dilakukan dari bilangan Reynolds tinggi sampai terendah yaitu 9515.

Penulis mengamati rasio penurunan hambatan (drag reduction) maksimum yaitu 53,9% pada bilangan Reynolds 9514.37. Penurunan koefisien gesek mengindikasikan keefektifan fluida uji xanthan gum yang dapat dilihat dari grafik koefisien gesek terhadap garis grafik Blasius.

.....The drag reduction of biopolimer xanthan gum in liquid has been studied as concentration function by using spiral pipe. Experiments are done by measuring the pressure drop. The purpose of this study is to observe the pressure drop in the spiral pipe with the addition of xanthan gum concentration in liquid.

25 mm-in-diameter spiral pipe is used in this study with a variation of xanthan gum solution with a concentration of 150 ppm, 250 ppm and 350 ppm. Experiments has been done according to the Reynolds figure, from the highest to lowest which is 9515.

Writer has observed the maximum ratio of drag reduction which is 53,9% on the Reynolds figure 9514,37. The decrease of coefficient of friction indicates the effectivity of the test fluid xanthan gum, that can be seen from the coefficient of friction graphics towards Blasius line graphics.