Thesis Title The Construction of Centrifugal Separator

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ABSTRACT

The objective of the researce is to produce a prototype for centrifuge for seperating suspended solids by means of centrifugal force at high speed rotation under the gravity. The instrument is designed on the basis of the gravity. The resources for producing instrument can be found within the country; therefore, the cost of this instrument is cheaper but the quality and durability are the same as the imported. The calibration of the instrument; with the imported is carried out by separating suspended solids - hydrazine sulfate solution within the same condition.

The quantity of hydrazine sulfate suspension are approximately 1.546 g. When centrifuging for separating suspended solids (hydrazine sulfate) instrument is approximately 1.4112 with the imported or 90.78% of all suspended solids and is approximately 1.3113 g. or 84.56% of all suspended solids. When plotting all the data from the two instruments, it is found that the two graphs are nearly the same (Fig. 4.6).

The regression analysis is used for the purpose of prediction Linear regression equation

$y = -0.0085 + 1.0827 X$

$r = 0.9985$

$r^2 = 0.9971$

F-test ration = 26462.338

Standard Error = 0.0584

Slope of Equation = 1.0827

From the linear regression test, it is found that hydrazine sulfate suspended solids centrifuged by the produced instrument has correlation with ones centrifuged by the imported instrument under the same condition in the positive or direct correlation (+), r 0.9985. And the data from both instruments are nearly the same and by examiming the slope of equation which is slighly more than 1 or equal to 1.0827 (Fig. 4.6). It is concluded that the weight of hydrazine sulfate suspended solids which centrifuged from two instrument are slighly different. As a result the produced centrifuge has the same quality as imported but it is cheaper about 78.48%. the cost of the instrument production is about 15,000 baht while the cost of the imprted instrument is about 70,000 baht. However, if it can be produced within the country with the low cost but the quality and durability is nearly the same. In addition, the produced instrument can be benificial in education and science.