

**PENURUNAN KANDUNGAN PHOSPHAT PADA LIMBAH CAIR
INDUSTRI PENCUCIAN PAKAIAN (LAUNDRY)
MENGUNAKAN KARBON AKTIF DARI SAMPAH PLASTIK
DENGAN METODE BATCH DAN KONTINYU**
(Studi Kasus : Limbah Cair Industri Laundry Lumintu Tembalang, Semarang)

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ABSTRACT

The increasing of laundry industry influenced to the increasing of detergent utilizing. The dominant substance which contained in the detergent was Natrium Tripolyphosphat which had function as a builder and surfactant. So the waste contained Phosphate. Most of the laundry industry threw their waste without treatment first. These would cause Eutrofication where the water body became rich of dissolved nutrient, descending of the dissolved oxygen and capability of water body assist power to water biota. Lumintu was one of the laundry industries which located in Tembalang district. According to the result of pre-experiment, water waste industry contained 10,21 mg/l phosphate. This value exceeded standard quality of Perda Prov. Jateng no. 10 year 2004 about maximum value for total of phosphate was 2 mg/l. One of wastewater treatment method was adsorption using the active carbon from plastic rubbish kind of Polyethylene. This experiment had a purpose to know about capability of active carbon from plastic rubbish in reducing phosphate content with batch and column operation. Batch operation used 1,2 and 3 gram variation weight active carbon from plastic rubbish for 30 - 60 mesh and 100 - 200 mesh variation media size. Batch operation had 45,45 % from the highest phosphate efficiency lowering on the 3 gram. Otherwise, coloumn operation did on the 1 inch diameter column with 50 ml/minute and 100 ml/minute debit variation. Continue trial had 54,75 % from the highest phosphate efficiency lowering on the 50 ml/minute. Constanta value speed (k_1) is 0,0108 ml/mg.s with capacity of adsorption (q_0) 0,677 mg/g.

Keyword : *wastewater of laundry industry, phosphate, adsorption, active carbon from plastic rubbish*