

ABSTRACT

THE EFFECT OF ZEOLITE THICKNESS ON THE DECREASE OF WELL WATER HARDNESS IN NGAJARAN SIDOMULYO HAMLET BAMBANGLIPURO BANTUL YOGYAKARTA

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Background: Water is the main need for human life. The use of well water has several parameters that need to be considered hardness (CaCO_3). A preliminary study conducted on September 28, 2020, a well owned by Mr. Naruh Riyadi in Dusun Sidomulyo Bambanglipuro Bantul, Yogyakarta regarding the level of water hardness, obtained a result of 516.2 mg/L and for hard based on the Minister of Health of the Republic of Indonesia Number 32 of 2017 the standard water quality (CaCO_3) of 500 mg/L.

Research Objectives: To determine the effect of zeolite thickness on the level of well water hardness reduction in Ngajaran Sidomulyo Hamlet, Bambanglipuro Bantul, Yogyakarta.

Research Methods: This type of research is a *quasi-experimental* design with *Pre Test-Post Test With Control Group Design*. The experiment was conducted in December 2020 - March 2021. The research object is the well water containing hardness (CaCO_3) high-owned by Mr. Naruh Riyadi in Hamlet Ngajaran Sidomulyo Bambanglipuro Bantul, Yogyakarta using technique. *grab sampling* The study was conducted by filtering zeolite filters with a thickness of 40 cm, 50 cm, 60 cm, and the control group consisted of six repetitions for each treatment. Sample examination was tested using *atest kit* hardness and descriptive and statistical data analysis using *One Way Anova*.

Results: In a descriptive percentage reduction in hardness (CaCO_3) zeolite filter thickness of 40 cm by 40.25%, a decrease in hardness (CaCO_3) zeolite filter thickness of 50 cm by 49.42%, and a decrease in hardness (CaCO_3) zeolite filter thickness 60 cm by 55.16%. The results of statistical tests using *One Way Anova* with *Sig* 0.339 > 0.05 showed that there was no effect of zeolite filter on decreasing well water hardness.

Conclusion: Filter zeolite with a thickness of 60 cm lowers hardness (CaCO_3) wells with a percentage decrease of 55.16%.

Keywords: Well Water, Hardness, Zeolite.