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Conversion Of GeNose C-19 Plastic Waste And HDPE (High Density Poly Ethylene) Into Alternative Energy Bio-Oil Using The Co-Pyrolysis Method

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ABSTRACT

Background: Covid-19 has spread to various countries in the world, one of which is Indonesia. The positive cases until March 29, 2021, have reached one and a half million cases and still increasing. GeNose is the latest Covid-19 testing tool that is able to detect the presence of Covid-19 with a sensitivity level of 89-92% and a specification of 95-96%. The ease of using GeNose C-19 has increased so that GeNose C-19 plastic waste also increases. If this is not considered, it will cause a new problem, such as the accumulation of plastic waste caused by the use of the GeNose C-19 tool.

Method: As solution to handling that problem, we utilize GeNose plastic waste with addition of HDPE (High Density Poly Ethylene) plastic to produce alternative bio-oil energy products. The methods used in this research are quantitative and qualitative methods with literature studies and research, where we collect data from various scientific journal including Garuda Ristekdikti, SINTA, and Google Scholar using the keywords GeNose waste, Pyrolysis, Plastic waste. In addition, we use the research process using a pyrolysis reactor.

Result: The resulting liquid from pyrolysis method is in the form of bio oil which can be used as an alternative energy material. However, the bio oil produced from the pyrolysis process does not produce high quantitative results. So, we combine with HDPE plastic with a ratio of 1:1 (Co-Pyrolysis) to get better results quantitative or qualitative and also have a better indication.

Conclusion: GeNose plastic waste treatment with the pyrolysis method with the addition of HDPE raw materials produces bio-oil products in larger quantities. In addition, the pyrolysis of GeNose plastic waste with the addition of HDPE, has a better and longer fuel power than bio oil from the pyrolysis of pure GeNose plastic waste.

Keywords: Covid, GeNose, HDPE, Pyrolysis.