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ANALYSIS AND ASSESSMENT OF H₂S SORPTION CAPACITY OF THE SELECTED BIOFILTRATION MATERIALS

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Abstract – Hydrogen sulfide is known as one of the highly toxic chemical compounds found in the raw biogas that needs to be eliminated before implementation in any industrial sector. Biofilter (a typical bioreactor) is a tool used to separate sulfide/sulfate from hydrogen by biofiltration method, which is known as the green technology. Packing material is the main component inside a laboratory-scale biofilter to undertake the desulfurization process of H₂S. This study is dedicated to evaluating number of selected recyclable/waste organic, inorganic, and synthetic packing material's rate of impact on amplifying purification progress of hydrogen sulfide from biogas, known as biofilters 'removal efficiency (RE)'. Variable affecting factors, such as environmental and equipment conditions, consumed time (day), and inlet H₂S concentration will be controlled throughout the measurements for all chosen packing materials. In the end, the best performed environment-friendly biofiltration material in terms of sorption capacity of H₂S from the biogas will be announced.

Keywords – *Biofilter; biogas; hydrogen sulfide (H₂S), packing material; removal efficiency (RE)*

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