

## Biodesulphurization within natural gas in oil and gas field

Sri Astuti Rahayu, author

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### Abstrak

The presence of sulphur compounds in natural gas can interfere to the quality of natural gas. The decline of combustion gas capacity, metal instrument corrosion in gas piping, and the environmental pollution from gas emission can affect by their presence. Bio-filter is one of the methods that selected to reduce sulphur content in natural gas. A lab scale study of hydrogen sulphide reduction in natural gas had conducted in oil and gas field using bio-filter method. The bio-filter system ( $\pm 1$  L volume) contains an active carbon and thiosulphide medium as a substrate, *Thiobacillus thioparus* as a single culture of sulphur bacteria, and *Thiobacillus thioparus* with sludge as a mixed culture of sulphur bacteria. The study of hydrogen sulphide reduction was conducted with continuous flow line process. The gas flow rate approximately 1.5 L/min with a fluctuate presence of Hydrogen sulphide (approximately 40 - 70 mg/L). The bio-filter system contains active carbon, thiosulphide medium, and single culture of *T. thioparus* appear as a good filter for hydrogen sulphide reduction. During 24 hours, the hydrogen sulphide reduction obtains 93% to 16%. When culture media added, the hydrogen sulphide reduction will increase almost 60% and then the reduction decrease to 4% after 20 hours. It is concluded that the bio-filter have potential to develop for sulphur reduction in natural gas.