Abstract

Title: Incorporating Carbon Capture & Storage in Petroleum Coke Using Olivine – Converting A Liability Into Asset

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I. Abstract Body (up to 250 words)

Boom in petroleum coke production due to industrial shift from fuel oils towards lighter, sweeter petroleum products has raised concerns regarding its disposal. A closer inspection of this waste by-product reveals that it can be turned into a valuable asset which can boost a refinery's bottom line. Recent studies have shown that petroleum coke can displace its contemporaries like coal, biomass and sewage residues because of its higher carbon content. The cheap price and huge production petroleum coke from refineries has given this entity a powerful economic boost to utilize it for power generation. Although, environmental concerns and rising carbon costs pose a challenge in its utilization at industrial scale. This study aims to provide a solution in the form of mineral carbonation utilizing olivine (Mg_2SiO_4), as a mineral which is rich in calcium/magnesium and reacts with carbon dioxide, thus resulting in metal carbonates as the end product, which is an innovative method of carbon sequestration. A comparative review with various other methods present in the literature exhibits its efficiency and cost effectiveness. Results presented in this study project its wide-ranging industrial scale applications. In this study it is concluded that compared to the other methods of carbon capture and storage, mineral carbonation utilizing olivine proves to be environmentally benign and provide permanent entrapment of carbon dioxide which eliminates the need of post storage surveillance.

II. Image:

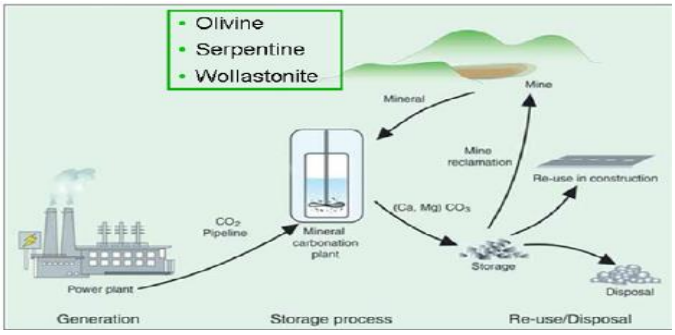


Figure: Depicting mineral carbonation scheme **[3]**

III. Reference:

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IV. Biography:

Rohin is currently pursuing Master in Technology in Petroleum Engineering from Indian Institute of Technology, Madras, India. His area of research is "Understanding the flow mechanism of gas in Shale Reservoirs". His topics of interests are Reservoir Engineering, Computational Fluid Dynamics, Environmental Science, Refinery Engineering and Reservoir Simulation. He has previously authored one international conference paper. He holds Bachelor of Technology in Petroleum Engineering from University of Petroleum and Energy Studies, Dehradun, India.

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