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Innovative use of Membrane Technology in Mitigation of GHG Emission and Energy Generation

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Abstract

Membrane technology is especially suited for remote locations where utilities are scarce. Membranes are an environmentally friendly alternative to traditional amine treatment processes.

"The novelty is that instead of using a filter that directly separates CO2 and other molecules, we use a so-called agent. It is a fixed carrier in the membrane that helps to convert the gas we want to remove," says NTNU Professor May-Britt Hägg. She is head of the research group Member for that works on the new membrane technology.

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Keywords:Membrane Technology; GHG Emission; Energy Generation.

Ref. 1 CO_2 first dissolves into the membrane & then diffuses through it. Because the membrane does not have pores, it does not separate on the basis of molecular size. Rather, it separates based on how well different compounds dissolve into the membrane & then diffuse through it.

According to the scientists, the technology is effective, inexpensive and eco-friendly, and can be used for practically all types of CO_2 removal from other gases. Its effectiveness increases proportionally to the concentration of CO_2 in the gas.

Membranes are specially manufactured materials that allow the selective permeation of a gas through them. The

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selectivity of the membrane to different gases is intimately related to the nature of the material, but the flow of gas through the membrane is usually driven by the pressure difference across the membrane. Therefore, high-pressure streams are usually preferred for membrane separation. There are many different types of membrane materials (polymeric, metallic, ceramic).

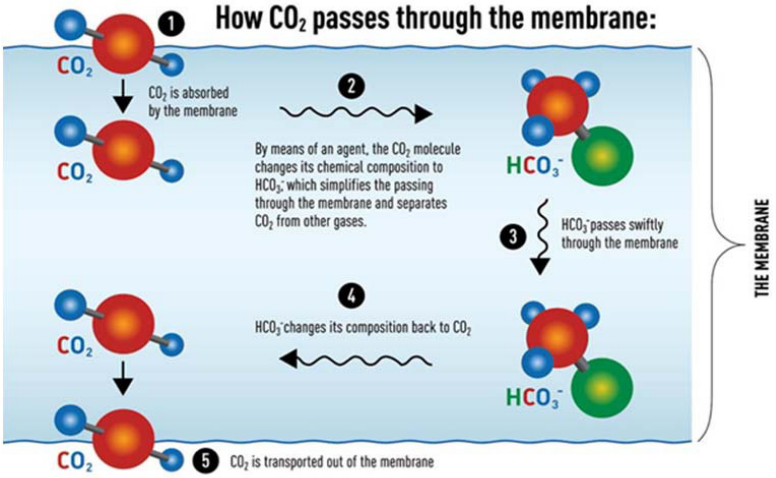

Fig. 1.

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Fig. 2.Geomembrane-GSI