

Performance Evaluation of an Inventive Co₂ Gas Separation Inorganic Ceramic Membrane System

Authors : Ngozi Claribelle Nwogu, Mohammed Nasir Kajama, Oyoh Kechinyere, Edward Gobina

Abstract : Atmospheric carbon dioxide emissions are considered as the greatest environmental challenge the world is facing today. The challenges to control the emissions include the recovery of CO₂ from flue gas. This concern has been improved due to recent advances in materials process engineering resulting in the development of inorganic gas separation membranes with excellent thermal and mechanical stability required for most gas separations. This paper therefore evaluates the performance of a highly selective inorganic membrane for CO₂ recovery applications. Analysis of results obtained is in agreement with experimental literature data. Further results show the prediction performance of the membranes for gas separation and the future direction of research. The materials selection and the membrane preparation techniques are discussed. Method of improving the interface defects in the membrane and its effect on the separation performance has also been reviewed and in addition advances to totally exploit the potential usage of this innovative membrane.

Keywords : carbon dioxide, gas separation, inorganic ceramic membrane, permselectivity

Conference Title : ICIM 2015 : International Conference on Inorganic Membranes

Conference Location : San Francisco, United States

Conference Dates : June 07-08, 2015