

Economics and Characteristics of Purification of LFG using alkaline waste water & ammonia

양끝 가르, 장정화, 박진원*, Sanjeev Maken¹, 송호준
연세대학교; ¹DCR state university Murthal, sonapat
(jwpark@yonsei.ac.kr*)

In this study a lab scale apparatus is used for removal of carbon dioxide (CO₂) from Landfill Gas (LFG) mixture using chemical absorption technique. Alkaline wastewater obtained from a nearby industry is used as a chemical absorbent and comparison is done with liquid ammonia solution. The maximum CO₂ loading for wastewater, 2 wt%, 5 wt% and 10 wt% ammonia are 1.7 CO₂ mol/sorbent L, 0.7 CO₂ mol/sorbent L, 1.6 CO₂ mol/sorbent L and 2.6 CO₂ mol/sorbent L respectively. Reaction rate was also calculated. Hypothetical prices are calculated when wastewater absorption is applied to purification of LFG. 1 million ton and 5 million ton LFG sites are considered and the cost of pipeline gas generated (won/mmBTU) is estimated using simple economical relations.