

**Metal-carbonate formation from ammonia solution by addition of metal salts – An effective method for CO<sub>2</sub> capture from Landfill Gas (LFG)**

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The absorption on CO<sub>2</sub> from LFG in different weight concentration ammonia solution and metal salts (Zinc and Barium) is investigated in this study. Addition of metal salts results in useful metal carbonates when LFG is passed through the solution. Barium salts shows a better potential of removing CO<sub>2</sub> as compared to Zinc salts. Addition of Barium salts to ammonia solution results in a new absorbent as no study has been focused on it till date. Also metal salts are added to alkaline wastewater which not only decreases the pH of the wastewater but also useful metal carbonates are obtained from wastewater when LFG is passed through it. Different parameters like CO<sub>2</sub> loading, reaction rate and change in pH are investigated. Formation of carbonates is proved by using SEM and XRD analysis. Raman spectroscopy was performed on the discarded liquid after removal of carbonates to understand the formation of bicarbonates, carbonates and carbamates.