



4<sup>th</sup> Post Combustion Capture Conference (PCCC4)

## Amine Regeneration Tests on MEA, DEA and MMEA with Respect to Energy Efficiency Study

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**Keywords:** CO<sub>2</sub> desorption, Amine regeneration curves, primary and secondary amines, Heat duty reduction, Energy efficient method

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### 1. Introduction

The CO<sub>2</sub> desorption analyses of several amines were performed to reveal the behaviour of amine regeneration process. A typical primary amine (MEA) and two other secondary amines (MMEA and DEA) were selected, in preparation for amine solutions under different concentrations, from 1-7 mol/L. The regeneration curves were generated and plotted to describe the process. It was discovered that the specific CO<sub>2</sub> loading (mol/mol) that distinguish the amine regeneration curves into different regions were the same for the specific amine, despite different concentrations. These points were defined as “turning points” on regeneration curves. The turning points of MEA, MMEA and DEA are located at CO<sub>2</sub> loading of 0.40 mol/mol, 0.38 mol/mol and 0.28 mol/mol, respectively. The carbamate stabilities of the three amines were compared with each other based on the slope of regeneration curves at slow region. The amine regeneration tests compared the relative heat duty at the first 2 hours: MMEA > MEA > DEA, which is the same order as carbamate stability.

### 2. Next

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### 3. Next Sections

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