



*“Gheorghe Asachi” Technical University of Iasi, Romania*



---

## **INFLUENCE OF DESULPHURIZATION IN THE CARBON DIOXIDE ABSORPTION PROCESS USING MONOETHANOLAMINE**

**Cristian Dincă\*, Adrian Badea**

*Energy Generation and Use Department, University of Politehnica of Bucharest, Romania*

---

### **Abstract**

The aim of this paper is to determine the influence of desulphurization on process efficiency and monoethanolamine (MEA) absorption capacity. The experiment was conducted on a circulating fluidized bed combustion (CFBC) which uses indigenous coal from Jiu Valley. We determined the absorption capacity of MEA considering three values of concentrations in the solution: 20%, 30% and 40%. It was noticed that the higher the concentration of MEA is in the solution, the greater is the influence in the efficiency of the desulphurization process on the absorption capacity of MEA. Therefore, the increase in the efficiency of the desulphurization process from 68 to 98% leads to the increase of the amount of CO<sub>2</sub> rich loading solvent by 0.172 g CO<sub>2</sub>/gMEA for a concentration of 20% and by 0.25g CO<sub>2</sub>/gMEA for a concentration of 40%. Considering an optimal desulphurization (1 % NaOH), the efficiency of the CO<sub>2</sub> capture process was of 85% irrespective of the MEA concentration in the solvent. However, the minimum energy consumption is obtained for the optimal concentration of 40% (3 GJ / tonne of CO<sub>2</sub>).

*Keywords:* CO<sub>2</sub> capture, MEA degradation, post-combustion capture, SO<sub>2</sub> removal

*Received: February, 2014; Revised final: May, 2015; Accepted: May, 2015; Published in final edited form: January, 2019*

---

---

\* Author to whom all correspondence should be addressed: e-mail: [crisflor75@yahoo.com](mailto:crisflor75@yahoo.com)