

## Modelling of Aerosols in Absorption Column

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**Abstract :** Formation of aerosols can cause serious complications in industrial exhaust gas cleaning processes. Small mist droplets and fog formed can normally not be removed in conventional demisting equipment because their submicron size allows the particles or droplets to follow the gas flow. As a consequence of this, aerosol based emissions in the order of grams per Nm<sup>3</sup> have been identified from PCCC plants. The model predicts the droplet size, the droplet internal variable profiles, and the mass transfer fluxes as function of position in the absorber. The Matlab model is based on a subclass method of weighted residuals for boundary value problems named, orthogonal collocation method. This paper presents results describing the basic simulation tool for the characterization of aerosols formed in CO<sub>2</sub> absorption columns and describes how various entering droplets grow or shrink through an absorber and how their composition changes with respect to time. Below are given some preliminary simulation results for an aerosol droplet composition and temperature profiles.

**Keywords :** absorption columns, aerosol formation, amine emissions, internal droplet profiles, monoethanolamine (MEA), post combustion CO<sub>2</sub> capture, simulation

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