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Title of the deliverable: PROGRESS REPORT ON RIGOROUS RATE-BASED MODELLING FOR REACTIVE ABSORPTION PROCESSES (PUBLIC SUMMARY)

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Dissemination Level

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| PU | Public | |
| PP | Restricted to other programme participants (including the Commission Services) | |
| RE | Restricted to a group specified by the consortium (including the Commission Services) | |
| CO | Confidential, only for members of the consortium (including the Commission Services) | X |

Reactive absorption is an up-to-date integrated operation comprising chemical reaction and mass transport. The application of reactive absorption has recently become especially important for the gas cleaning up to high purities. Compared to physical absorption (without reactions), reactive absorption is able to provide high solution capacity at moderate partial pressures and without requiring large amounts of solvent, thus providing an intelligent technological solution.

Reactive absorption is a very complex process dominated by its kinetics. Therefore, the development of rigorous rate-based models is crucial for its adequate description. Such advanced models for the CO₂ capturing are elaborated. They will be tested and used in WP5 to identify the optimum process and operating conditions of absorption plants. The overall objective is to save energy during the regeneration of the solvent. This could be achieved for example by replacing the primary amines as solvent (e.g. monoethanolamine, MEA) with tertiary amines (e.g. monodiethanolamine, MDEA).