PROCEDE

Kinetic / VLE set-up

Intermediate pressure

Purpose

Acid gases can be removed from industrial gas streams with a chemical and/or physical solvent. In this experimental set-up both the reaction kinetics as the acid gas solubility (VLE) can be determined for different gas treating processes. The absorption process will take place in a stainless steel Büchi reactor, which is connected with a high intensity stirrer (gas and liquid phase). The reactor is double walled and connected with a heating bath.

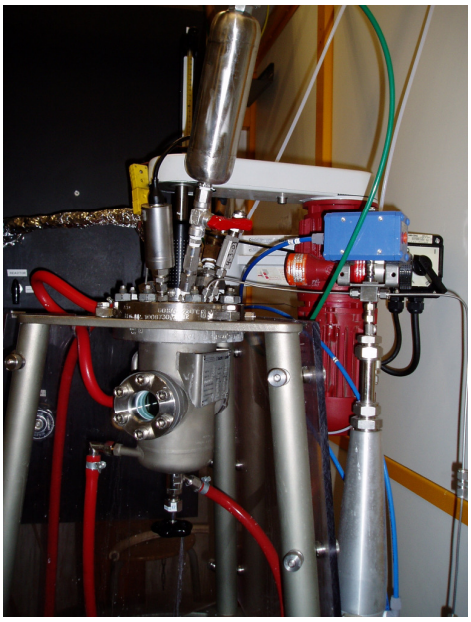
Acid gases

- carbon dioxide, hydrogen sulphide, carbonyl sulphide, mercaptans (methyl- upto pentylmercaptans)

Solvents

- (alkanol)amines, alkaline salts, amino acid salts, ammonia, physical solvents

Picture



Specifications

100 mbar < P < 35 bar

5 < T < 120 °C

Charge quantity: ± 500 ml

Results

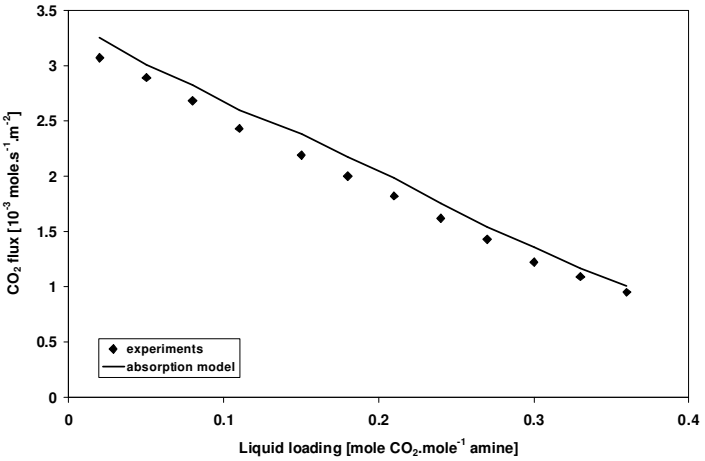


Figure: CO_2 absorption rate in 2 M aqueous DEA at 293 K at different liquid loadings (ref. 1)

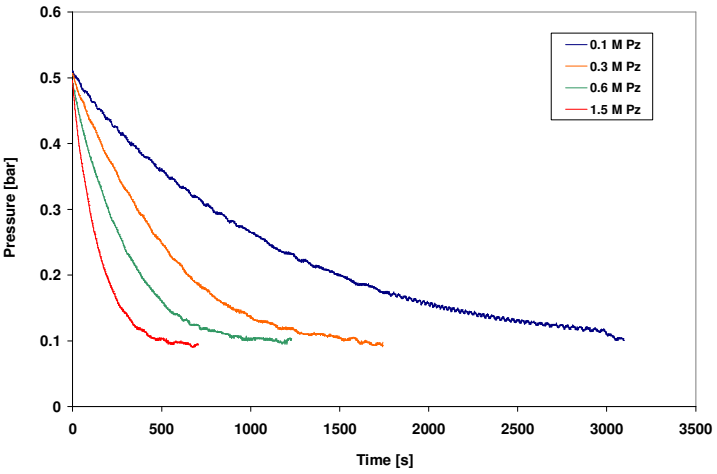


Figure: COS absorption in aqueous piperazine at 313 K (ref.2)

Ref.1 A. Mohan, E. van Elk, S. van Loo, G.F. Versteeg, CHISA 2008, Prague, Czech Republic

Ref.2 P.J.G. Huttenhuis, A. Mohan, S. van Loo, G.F. Versteeg Distillation and Absorption Conference 2006, London, UK

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