

## Kinetic / VLE set-up Low 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 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

10 mbar < P < 5 bar  
5 < T < 70 °C  
Charge quantity: ± 500 ml

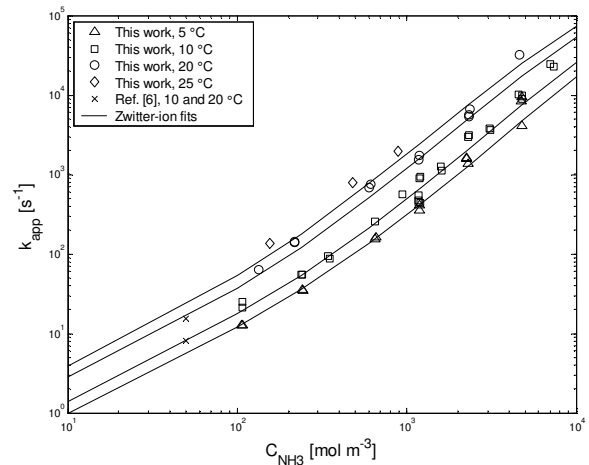


Figure: Experimental determined apparent kinetic rate constants ( $CO_2$ ) as a function of ammonia concentration (ref. 1)

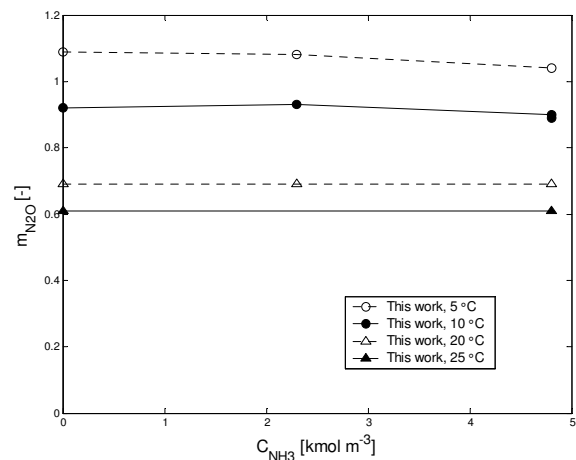


Figure: Solubility of  $N_2O$  in aqueous ammonia (ref. 1)

Ref.1 P.W.J. Derks, G.F. Versteeg, GHGT-9 (2008) Washington, USA.

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