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# Influence of the crystallization rate on the formation of gas hydrates from CH<sub>4</sub>-C<sub>3</sub>H<sub>8</sub> gas mixtures and extension to other mixtures

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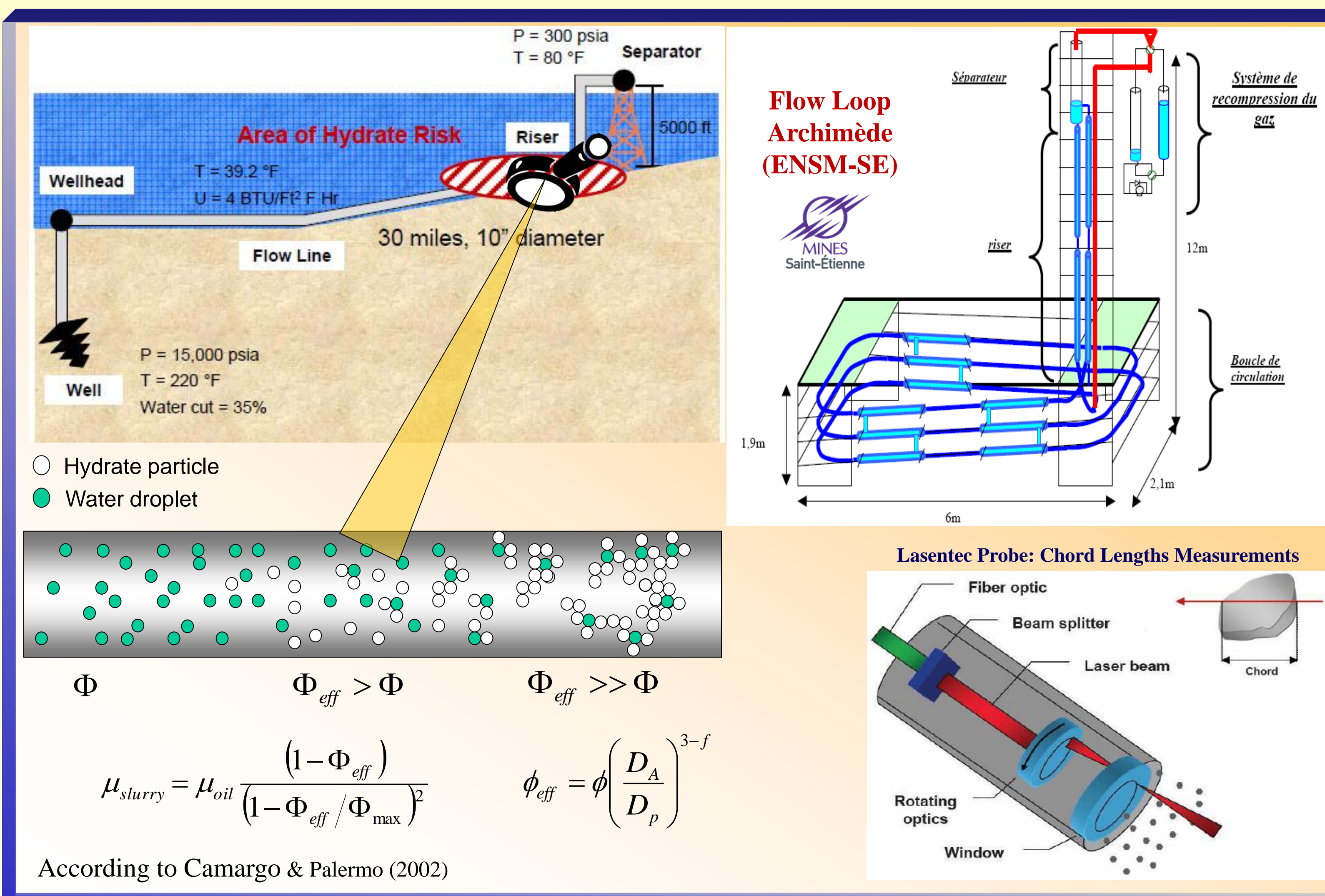
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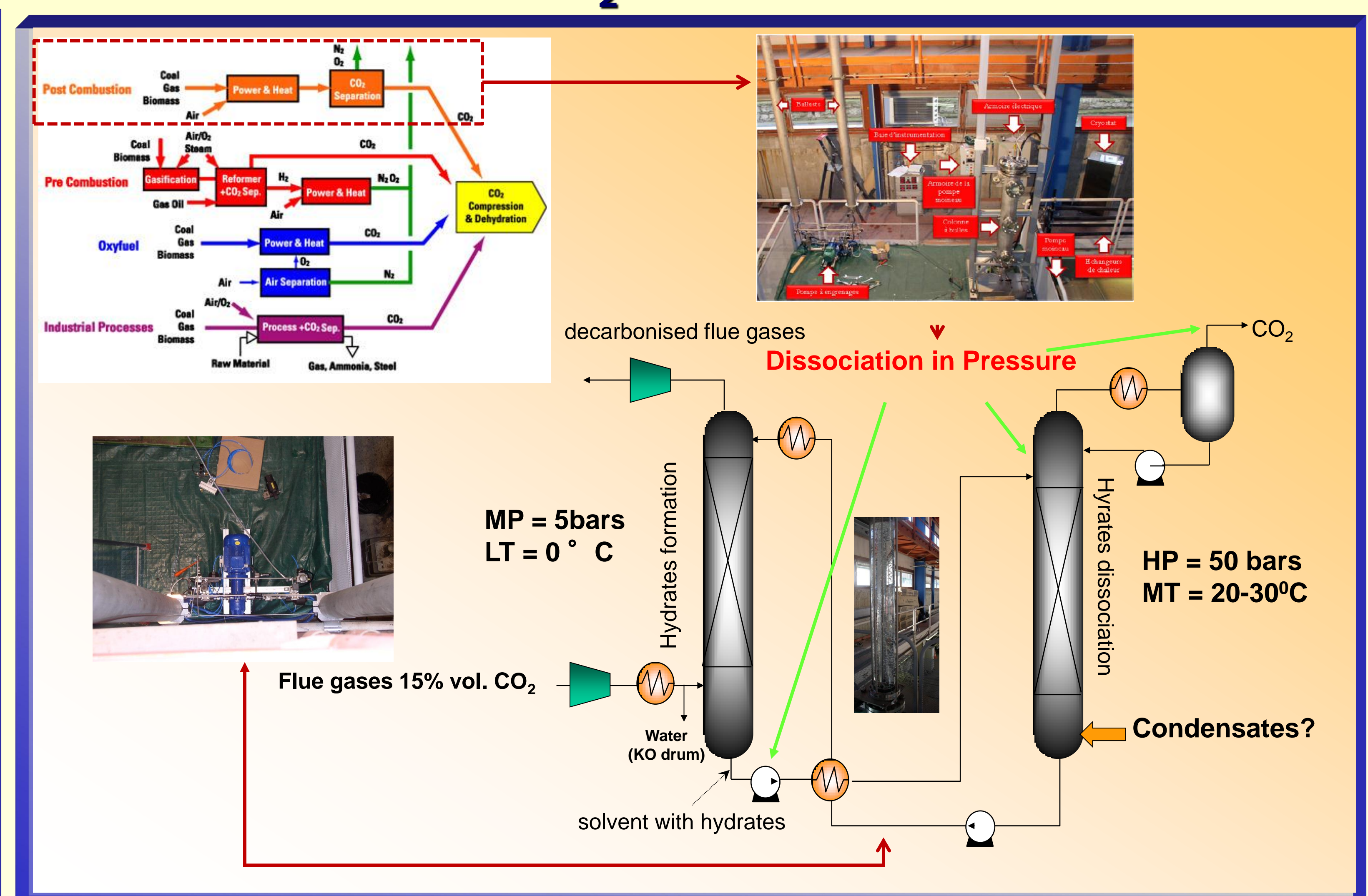
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In this study, we present details on two different experimental procedures to form mixed hydrates. They are applied to measure the volume and composition of the crystallized hydrate from CH<sub>4</sub>-C<sub>3</sub>H<sub>8</sub> gas mixtures at high and low crystallization rate, respectively. The results obtained from both methods reveal a difference in composition, final pressure and volume between the two procedures (quick and slow crystallization). Furthermore, this work aims at contributing to the global understanding of the coupling between kinetics and thermodynamics to provide some insight in the composition of the gas hydrate phase during its crystallization from an aqueous liquid and a mixed gas phase. In addition, we face new experimental facts that open questioning after comparing the modelling of clathrate hydrates following the classical approach (van der Waals and Platteeuw, 1959).

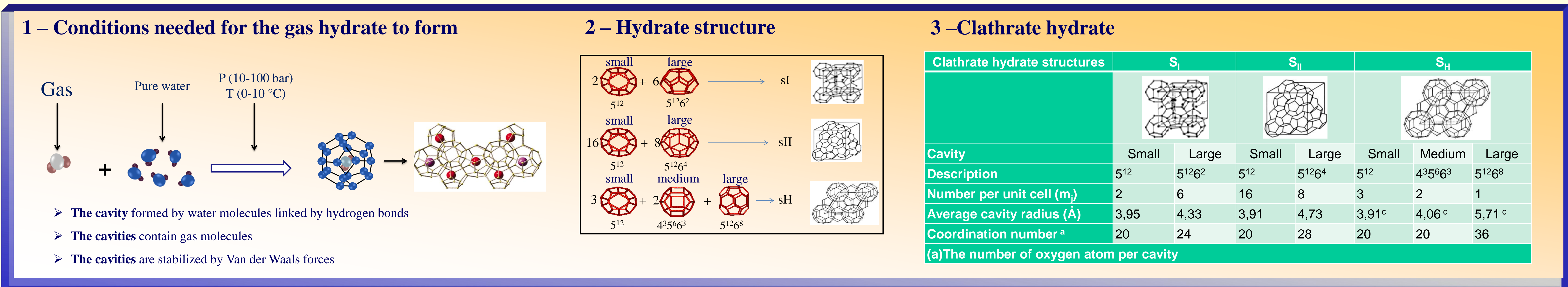
## FLOW ASSURANCE



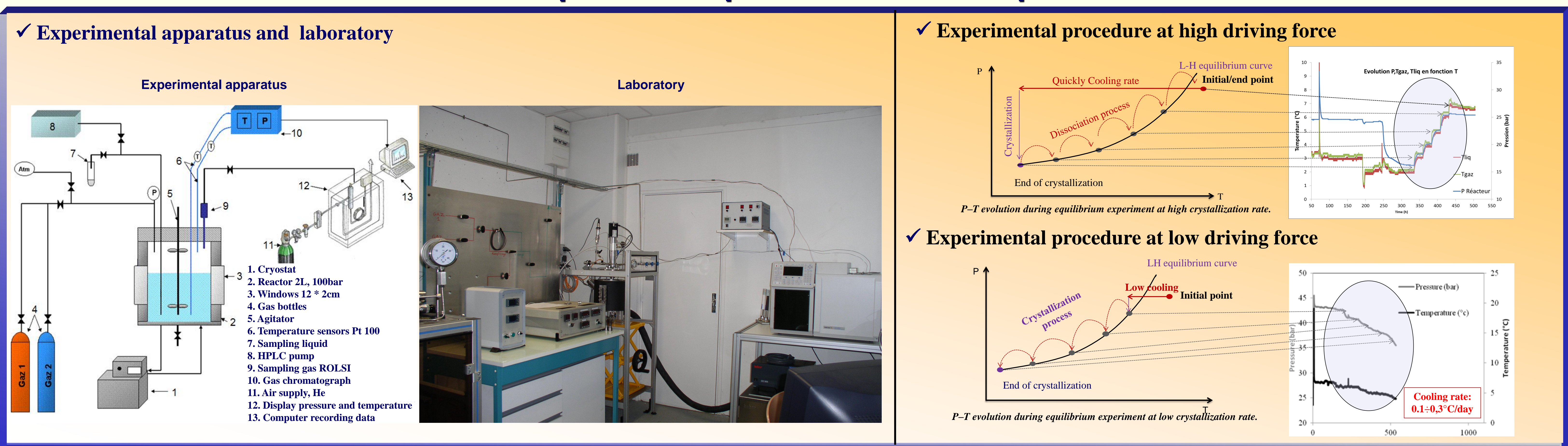
## CO<sub>2</sub> CAPTURE



## GAS HYDRATES FORMATION



## Experimental procedure and set-up



## COMPARING: Results from procedure at high driving force AND procedure at low driving force

