

RESULTS

TURBISCAN On line measures, in real time, the backscattering increases which correspond to the droplet size decreases during the emulsification processes (*Figure 1*). The greater the homogenisation speed is, the finer the emulsion will be (small oily droplets).

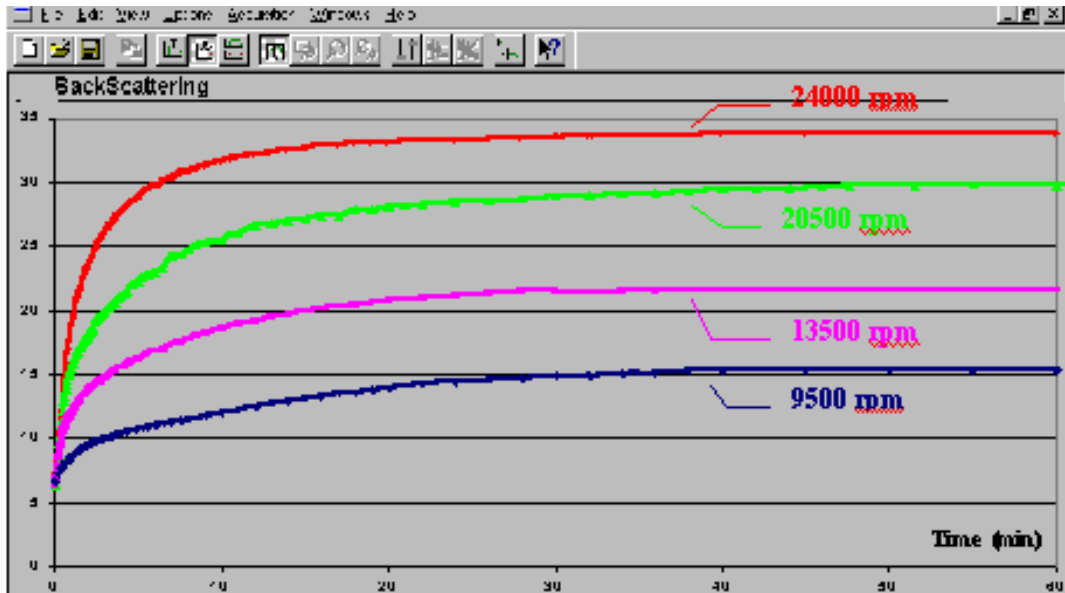


Figure 1

Knowing the volume fraction and the refractive indices of both phases, we determine the mean droplets diameter at the end of the process (when the emulsification is complete) (*Figure 2*).

This calculation enables to correlate the droplet sizes with the supplied homogenisation speed (*Figure 2*).

We can conclude that the higher the speed used for emulsification is, the smaller the particles are and the more stable the emulsion will be.

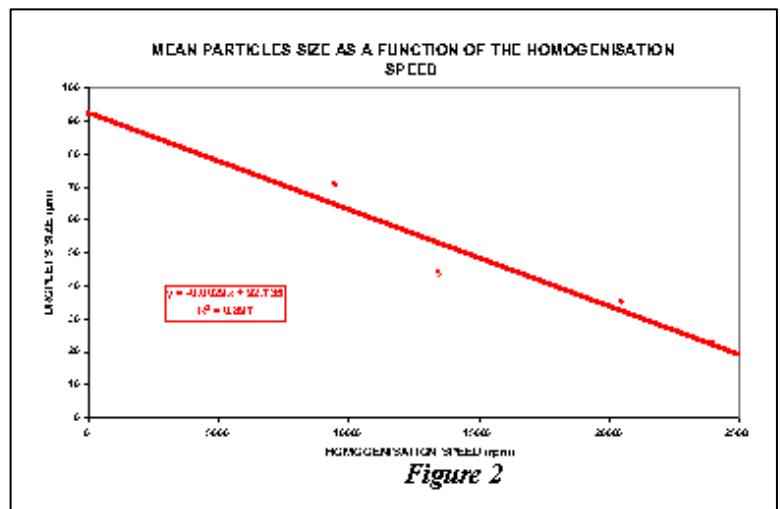


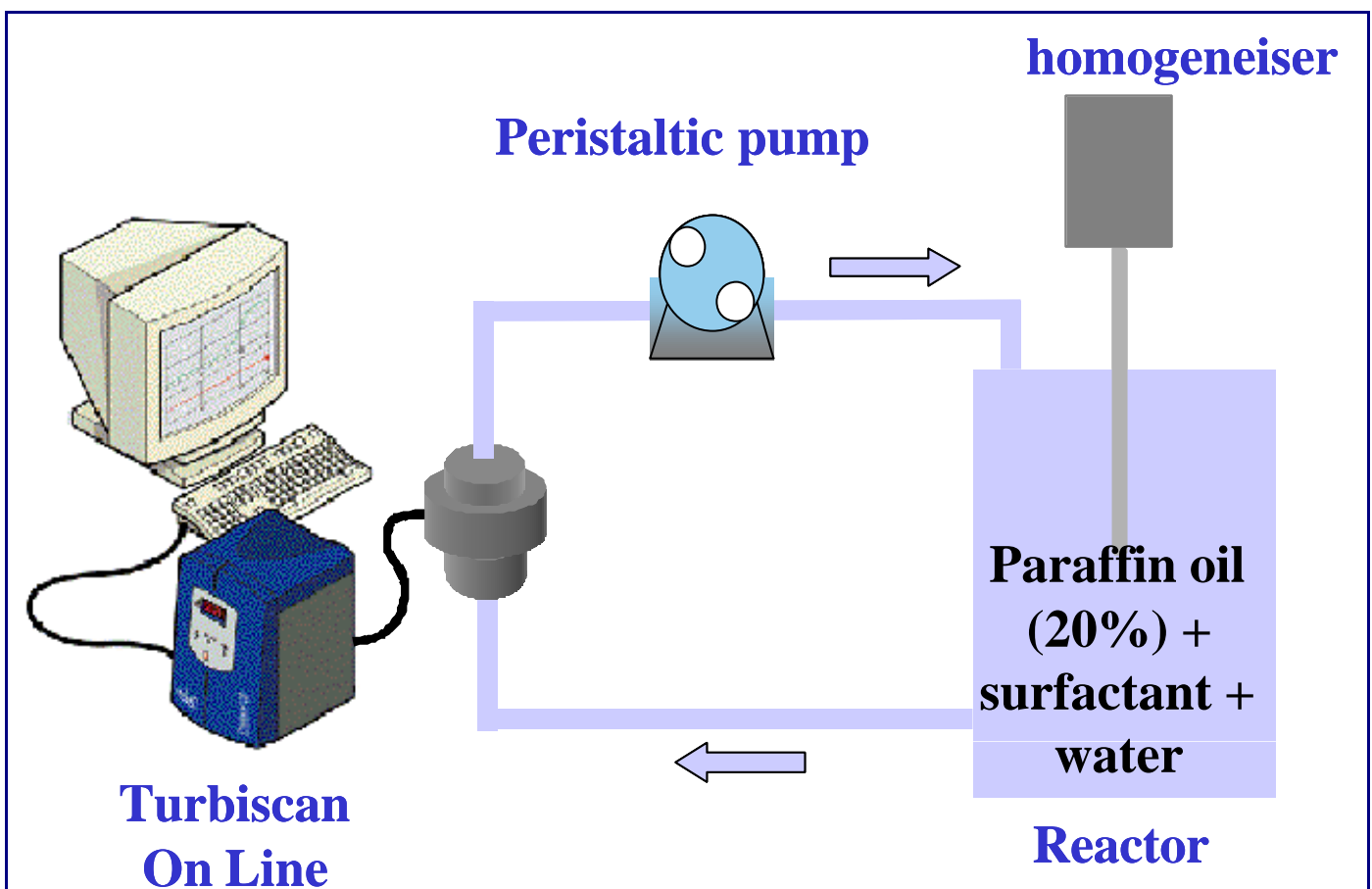
Figure 2

CONCLUSION

The **TURBISCAN On line** monitors and characterises emulsification processes in real time, with a high acquisition frequency (0.1 s). It enables to calculate the physical parameters which characterise dispersed system.

Effect of the Homogenisation Speed on the Emulsification Efficiency

EXPERIMENT SCHEMA



We follow the emulsification of paraffin oil 20% concentrated in water at different homogenisation speeds :

- × 9500 rpm
- × 13500 rpm
- × 20500 rpm
- × 24000 rpm

We measure the evolution of backscattered light intensity as a function of time for each stirring speed. The time T_0 corresponds to the moment when we begin the homogenisation.