

PREDICTION OF COLLAPSE TIME OF POLYMER STABILIZED O/W EMULSIONS

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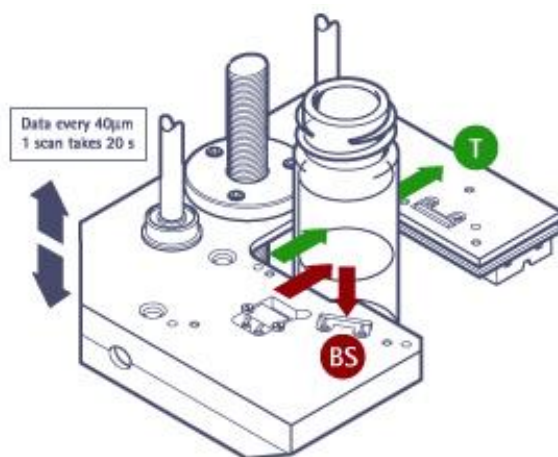
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Polymers are widely used in the industry as an ingredient to increase the stability of formulations. Depending on their concentration, they can act as depletion agents or gel agent. The stability of these systems is driven by the polymers and the structure of the network of droplets and can lead to collapse of the emulsions.

In this work, Multiple Light Scattering device is used to monitor the behaviour of w/o emulsions stabilized with polymers. The heart of the optical scanning analyser is a detection head, which moves up and down along a flat-bottomed cylindrical glass cell (see figure). The detection head is composed of a pulsed near infrared light source (wavelength = 880 nm) and two synchronous detectors. The transmission detector (at 180 ) receives the light, which goes through the sample, while the backscattering detector (at 45 ) receives the light scattered backward by the sample. The detection head scans the entire height of the sample, acquiring transmission and backscattering data every 40  m.

We propose a description of the behaviour of o/w emulsions stabilized with different polysaccharides, we will show the advantages of using Multiple Light Scattering (MLS) to monitor their stability and propose a method to predict stability of these emulsions thanks to their size evolution in the first days after preparation.



Principle of MLS measurement