

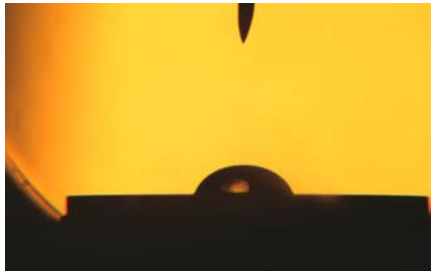
The influence of wettability on separation efficiency of liquid – liquid coalescers

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Coalescers are used in many processes, like extraction, offshore, waste water treatment and fuel – water separation. The difficulty is that there are no design rules based on physical theory and also there is a huge amount of parameters which makes it not easier.

One of the parameters is the wettability, which is not really comprehensible. In most cases the wettability is measured as the angle between drop phase and material, so called static wettability. The dynamic angle (advancing and receding angle) is



measured on an inclined area or de-/increasing drop size. These two values give not the representative data to explain the different efficiency on coalescence applications. Therefore it was necessary to develop a new test method and apparatus to determine a flow velocity depending angle.

Many emulsions were tested with different separation materials on efficiency. The normal corresponding substance properties and separation material data were not able to explain the differences in efficiency.

The graphs show the influence of efficiency on the spec. load, by more or less equal substance data. The measured wetting angles with the new method are able to explain the results.

