Emulsion Separation

Subjects: Green & Sustainable Science & Technology

Contributor: Jack Zhong

Emulsion Separation is the removal of the dispersed phase of an emulsion by a membrane, by a demulsifier, or by a field, and the membrane route dominates when the droplet is smaller than a few micrometres. A hydrogel nanofibrous membrane separates an oil-in-water emulsion by squeezing coalescence, so the water passes while the oil is held at the fibre [1]. A heterogeneous wettability, with a hydrophilic patch beside a hydrophobic one, breaks the film between two droplets and lets a coalesced droplet through [2]. A helical carbon nanotube grown inside a ceramic channel raises the flux without closing the pore [3]. A piezoelectric membrane turns a pressure fluctuation into a surface charge, and that charge destabilises the film at the interface [4]. A hyperbranched polyether demulsifier grafted on a polyvinylidene fluoride membrane adds a chemical route to the same end [5].

oil-in-water emulsion | membrane separation | demulsification | coalescence | wettability | ceramic support | flux recovery

References

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