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Fluxification: Interfacial Solute Flux Promotes Emulsification at the Water|Oil Interface

Solute flux method enables spontaneous oil–water emulsions without external energy input.

Researchers at Purdue University have determined a method of creating emulsions of water and oil interfaces. Normally, this process requires a significant driving force to disperse droplets. Purdue's approach, on the other hand, employs the flux of a common phase transfer agent across the oil-water interface to promote emulsification, thereby reducing the external energy required for droplets to form. This technology has a broad range of applications in industries such as pharmaceutical, cosmetic, food, and chemicals, as well as other sectors where emulsification is employed.

Advantages:

- Spontaneous emulsion of oil and water

- No requirement of external energy

Applications:

- Pharmaceutical Development and Manufacturing

- Cosmetics Manufacturing

- Food Production

- Chemical Manufacturing

Related Publication: ColÃ³n-Quintana, G.S., Clarke, T.B. & Dick, J.E. Interfacial solute flux promotes emulsification at the water|oil interface. Nat Commun 14, 705 (2023). https://doi.org/10.1038/s41467-023-35964-9

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Technology Validation: This technology has been validated through testing of the proposed method at a small scale in a lab environment.

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