Crystallization from a Water-in-Oil Emulsion as a Route to Enantiomer Separation: The Case of DL-Threonine

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ABSTRACT: The use of crystallization as a means of separating enantiomers is well known. The utility of commonly applied seeding approaches is limited by the ultimate crystallization of the antipode. Here we demonstrate how the combination of colloid science and crystal chemistry can lead to an emulsion based process yielding robust separation of a purified solid and impure liquid phases with ultimate product *ee* of up to 90 %. Threonine is used as a model to demonstrate the viability of the method but it is clear that extension to include, for example, simultaneous racemization within the disperse phase is easily possible and would transform this from a separation to a preparation process.