

A pickering emulsion stabilized by chlorella microalgae as an eco-friendly extrusion-based 3D printing ink processable under ambient conditions

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Complex fluids including colloidal dispersions and Pickering emulsions, with suitable rheological properties, can be useful platforms for advanced printing processes including 3D printing. With increasing demands for eco-friendly printing materials, we investigated the 3D printability of complex fluids containing green algae (chlorella) grains provided by nature. It was found that the Pickering emulsions with the dispersed oil phase exhibited much better printability than the simple aqueous chlorella dispersion. Herein, we present the results of a systematic study on the rheological properties of chlorella-stabilized Pickering emulsions as 3D printing inks.