Towards more realistic reference microplastics and nanoplastics:

Preparation of polyethylene micro/nanoparticles with biosurfactant

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Supplementary Information

DSC measurements

The crystalline fraction of the gelled PE was determined by taking the ratio between the enthalpy of fusion of PE at 116°C and the enthalpy of fusion of 100% crystalline PE (285 J/g)\(^\text{15}\). The estimated crystalline fraction in the gelled PE was 32%.
Figure S1. Shows the DSC thermogram of gelled PE obtained by dissolving the PE in toluene by heating at 90°C for overnight and subsequent rapid cooling to 20°C followed by drying of the toluene. Peak in the gelled PE is an indication of crystalline domains in the gelled PE.

Figure S2. (a) Derivative of the weight loss of the powder as a function of temperature for different concentrations of (a) Tween 60, (b) biosurfactant, and (c) Tween 80. The powder was obtained with 10 wt% PE in the toluene phase. The data is compared with the PE pellets (PE) and 100% Tween (Tween80).
Figure S3. Fraction of PE in the powder as function of PE concentrations in the toluene phase at 2wt% Tween 60.

Figure S4 CLSM images of particles formed with different PE concentrations at 2 wt% Tween 60 concentration.
Figure S5. Weight concentration distribution of the particle radii with different concentrations of PE at 2 wt% Tween 60.