Supplementary information

Reply to the 'Comment on "Lewis acid-surfactant complex catalyzed polymerization in aqueous dispersed media: cationic or radical polymerization?"' by I. V. Vasilenko, F. Ganachaud and S. V. Kostjuk, *Polym. Chem.*, 2024, **15**, DOI: 10.1039/D3PY00661A

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Experimental

Materials

Styrene (Quimidroga, technical grade) was distilled under reduced pressure prior to use and stored at -22 °C. Toluene (Sigma Aldrich, ≥99.5 %), 2,2'-Azobis(isobutyronitrile) (AIBN, Sigma Aldrich, 98%) and pentachlorophenol (PCP, Sigma Aldrich, 97%) were used as received.

Methods

Gel permeation chromatography (GPC) was conducted using three columns in series (Styragel HR2, HR4 and HR6) with a refractive index (RI) detector (Waters 2410). The flow rate at which THF was eluted was 1 $mL.min^{-1}$. For the sample preparation, solutions of 5 mg of polymer per millilitre of THF were prepared and filtered through a nylon filter with 45 µm pores. The molecular weight of the polymers were calculated using the RI detector and the results were based on polystyrene standards.

Polymerizations

Reactions were carried out in 25 mL round bottomed flask which was sealed using a rubber septum but without attempting to remove oxygen from solution. In a first reaction, 7 g styrene, 3 g toluene and 0.07 g AIBN were added to the flask which was then sealed and heated to 70 °C for 9 h. In a second reaction, 7 g styrene, 3 g toluene, 0.07 g AIBN and 0.65 g pentachlorophenol were added to the flask which was then sealed and heated to 70 °C for 9 h. The final conversion was determined gravimetrically. The polymer was precipitated in cold methanol and dried before being dissolved in THF for the GPC measurement.