

Supporting Information

A. Calculation of the calculated suspended solid volume from particle counter

$$\sum_n^{32} \left(\frac{1}{6} \pi d_n \right) * c_n = V_{CSS}$$

d_n = lower boundary diameter of channel n

c_n = number of particles per mL in channel n

V_{CSS} = calculated volume of suspended solids

B. Calculation of the theoretical suspended solid volume

$$\frac{\beta_i}{\rho_i} = V_{tss}$$

β = mass concentration of solid

ρ = density of solid

V_{tss} = theoretical volume of suspended solids

C. Calculation of dispersion efficiency E_D

$$E_D = \frac{V_{CSS}}{V_{tss}}$$

D. Channel settings for PAMAS SVSS

Channel	Lower Boundary (μm)	Upper Boundary (μm)
1	1	2
2	2	3
3	3	4
4	4	5
5	5	6
6	6	7
7	7	8
8	8	9
9	9	10
10	10	12
11	12	14
12	14	16
13	16	18

14	18	20
15	20	25
16	25	30
17	30	35
18	35	40
19	40	45
20	45	50
21	50	60
22	60	70
23	70	80
24	80	90
25	90	100
26	100	110
27	110	120
28	120	160
29	160	160
30	160	180
31	180	200
32	200	-

E. Calculated volume from ultrasonic treatment of six batches (A–F) in 15 minute intervals

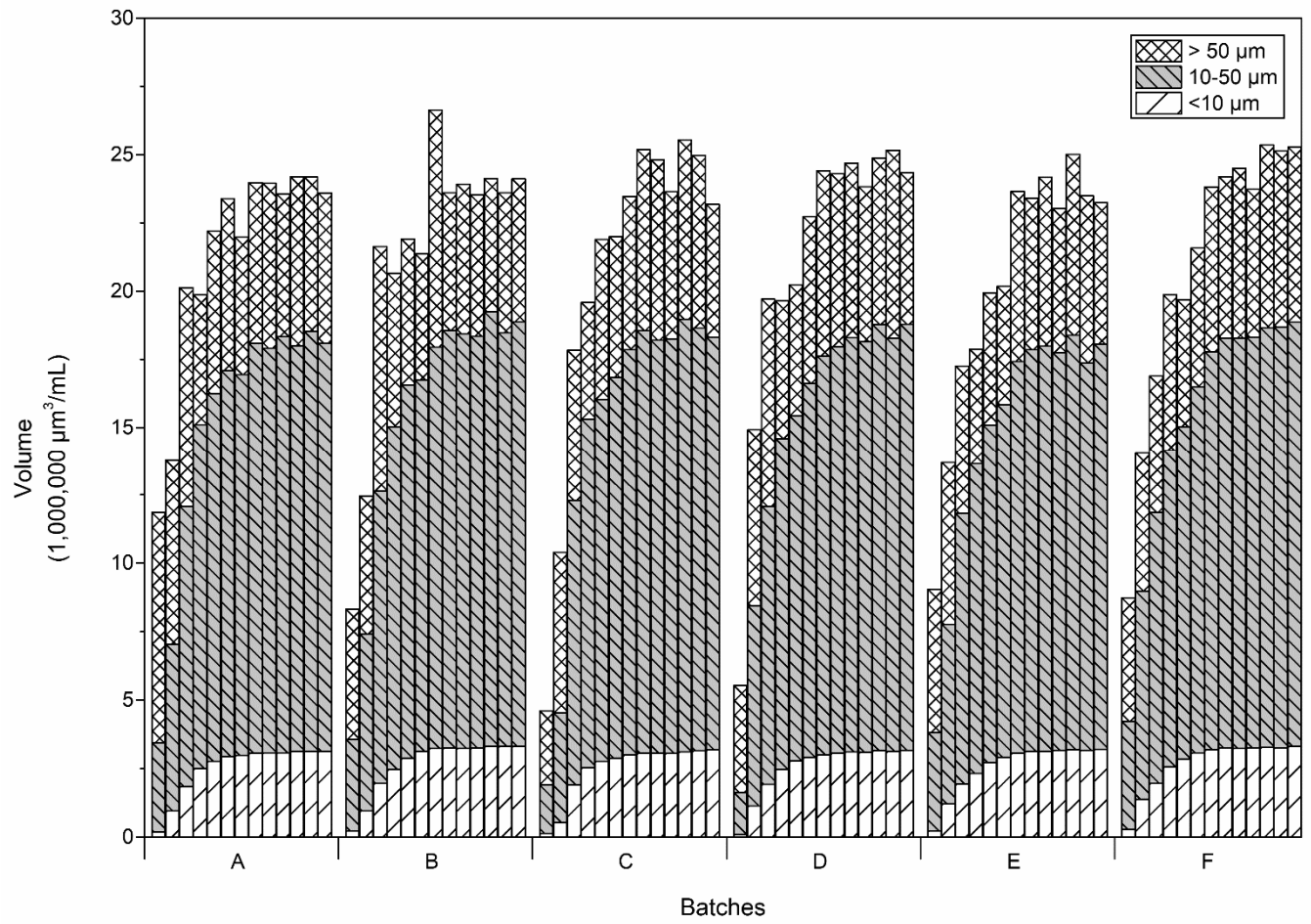


Figure S1. Calculated volume of six batches (A–F) of 20 mg/L polystyrene particles during ultrasonic treatment. Batches were repeatedly placed for 15 minutes in ultrasonic bath and particle numbers measured through light extinction.

F. Non-normalized calculated Volume of batch 'A' during ultrasonic treatment

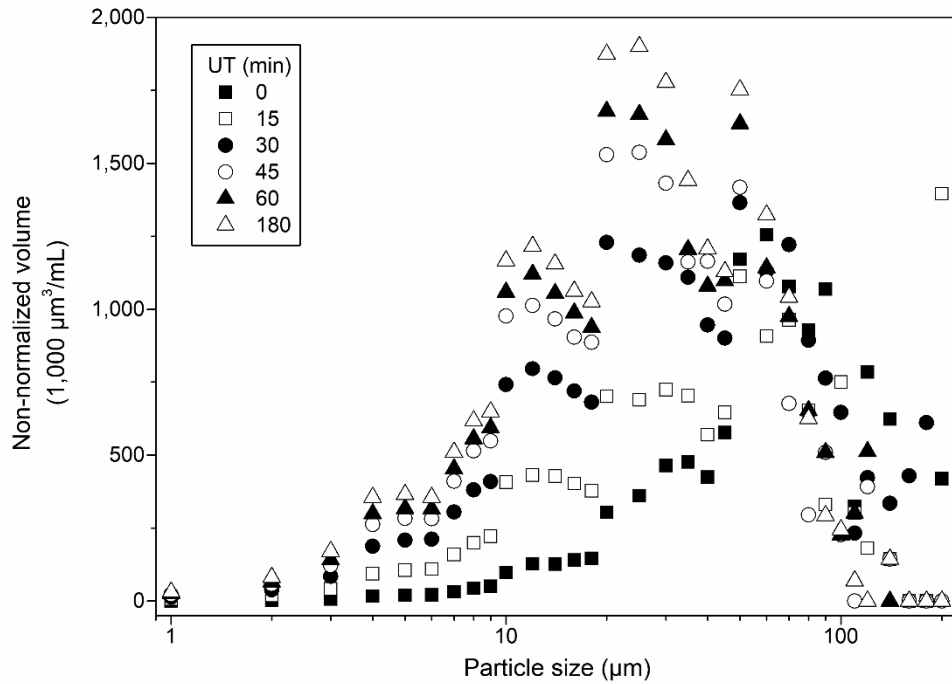


Figure S2. Calculated volume per size channel of batch 'A' during 180 min of ultrasonic treatment. Values were non-normalized compared to Figure 5 (b).

G. Long-term particle settling of a dispersion with 180 minutes ultrasonic pre-treatment

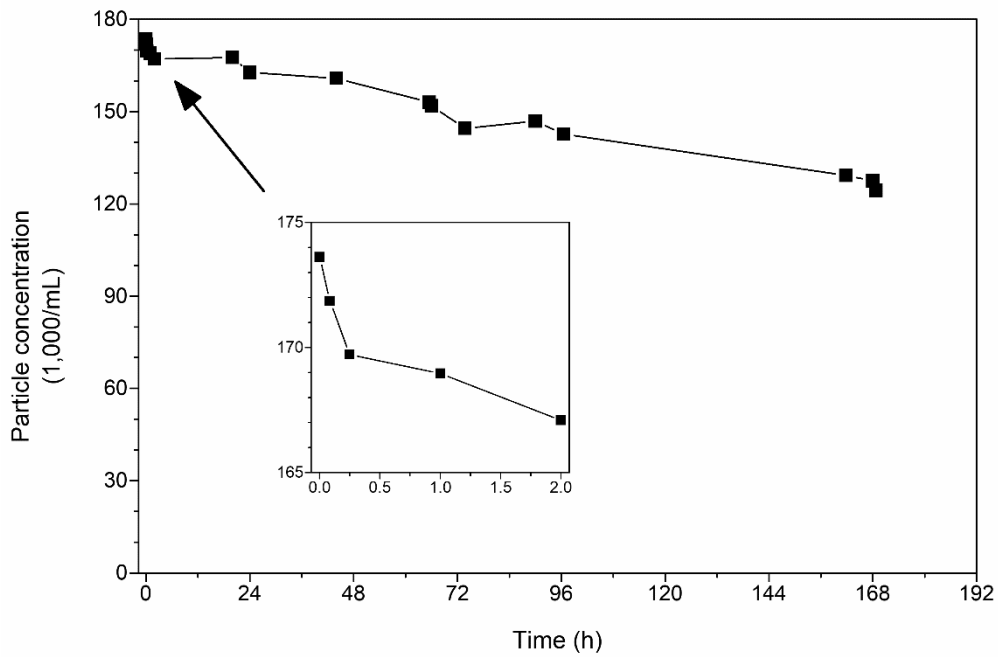


Figure S3. Particle settling of a 20 mg/L polystyrene dispersion which was left to settle for one week and only moved for measuring purpose. Inlay shows particle concentration during the first two hours. Dispersion was prepared with 180 minutes of ultrasonic treatment. Sample was measured in triplicate.

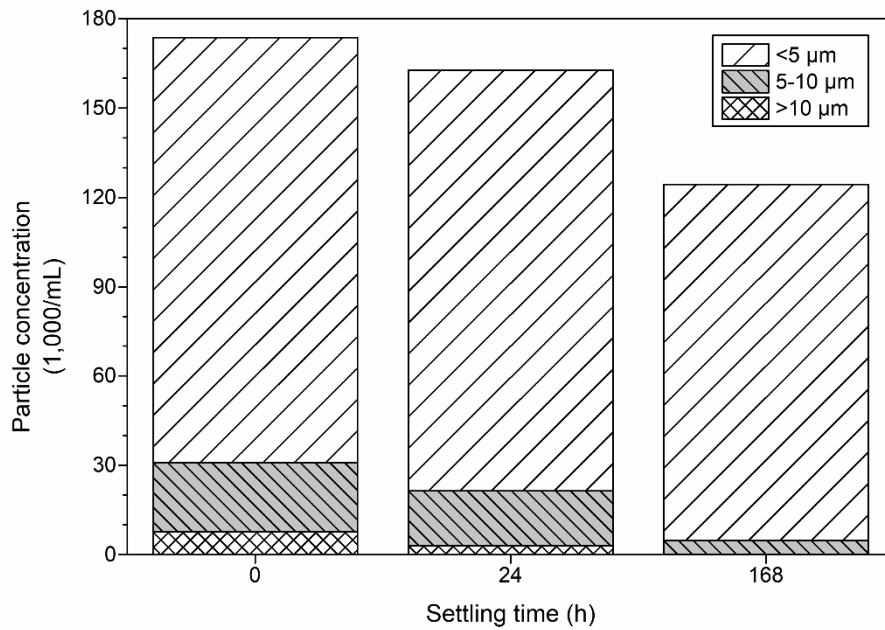


Figure S4. Size fractions of long-term particle settling dispersion (20 mg/L polystyrene) with 180 minutes of ultrasonic treatment. Sample was measured in triplicate.

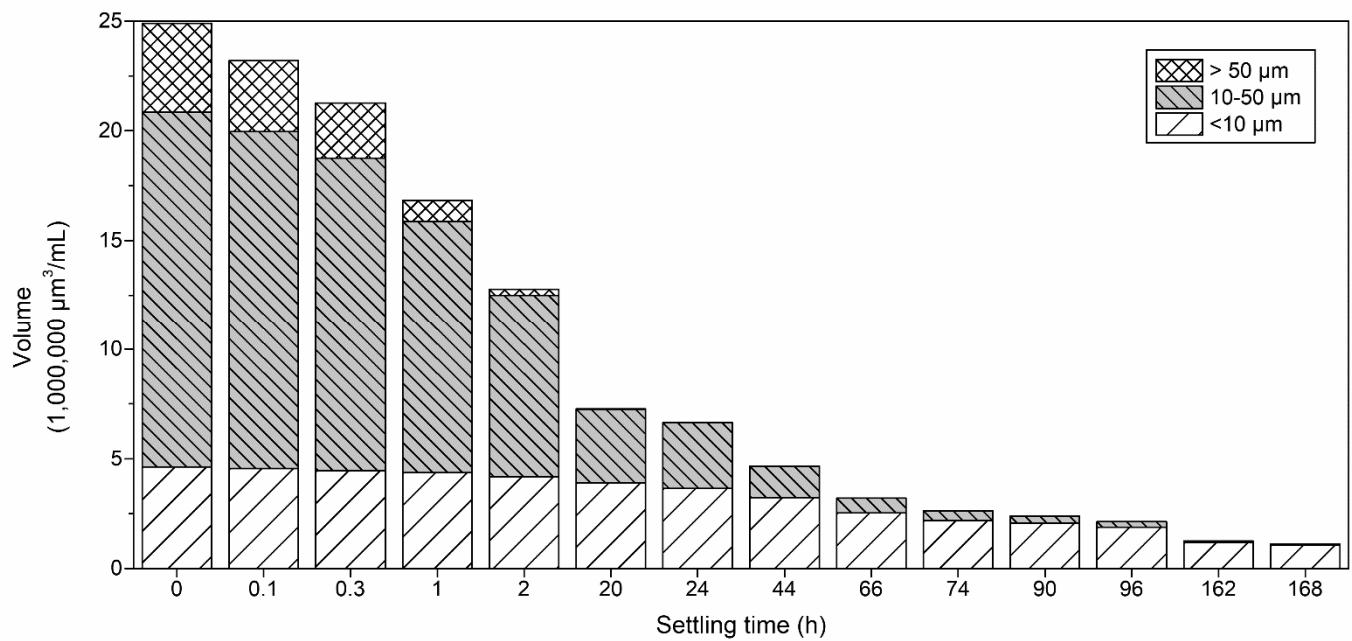


Figure S5. Calculated volume of a long-term particle settling dispersion (20 mg/L polystyrene) up to 180 minutes of ultrasonic treatment. Sample was measured in triplicate.