

Supplemental Material4.1. *Chemical details*

- Ethyl caprylate (CAS No. 106-32-1)
- 0.65 cSt Poly(dimethylsiloxane)
- (PDMS) oil (CAS No. 107-46-0)
- 2-ethylhexyl acetate (CAS No. 103-09-3)
- 10 cSt silicone oil (CAS No. 63148-62-9)
- isobutyl isobutyrate (CAS No. 97-85-8) and sodium chloride (NaCl) (CAS No. 7647-14-5) were purchased from Sigma-Aldrich.
- 1 cSt silicone oil (CAS No. 107-51-7)
- 2 cSt silicone oil (CAS No. 141-63-9)
- 5 cSt silicone oil (CAS No. 63148-62-9) were purchased from Clearco Products Co., Inc.
- Perfluorohexane C_6F_{14} (CAS No. 355-04-4, commercial name Flutec PP1) and Perfluoro-2,4-dimethyl-3-ethylpentane C_9F_{20} (CAS No. 50285-18-2, commercial name Flutec PP90) were purchased from F2 Chemical Ltd.
- Saturated NaCl water solution was made with Milli-Q water with an internal specific resistance no less than 18.4 M Ω /cm.
- 1.7 cSt silicone oil was prepared by mixing 1 cSt silicone oil and 2 cSt silicone oil at 23:77 (v/v).