SUPPORTING INFORMATION

Table S1 Properties of Test Liquids and Flow Ranges for Recent Liquid-Liquid Two-Phase Flow, Corresponding to the Data Given in Table 1

Author	Test liquids Continuous- Dispersed	Test Liquids Properties	Flow range
Zhao [60]	Water-Kerosene	Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s Kerosene: ρ = 780 Kg/m^3 & μ = 0.00115 Pa.s γ = 0.045 N/m	$u_{water} = 9.26 \times 10^{-4}$ to 1.85 m/s and $u_{kerosene} = 9.26 \times 10^{-4}$ to 2.78 m/s $7.61 \times 10^{-6} < We_{water} < 30.4$ and $35.94 \times 10^{-6} < We_{Kerosene} < 53.5$
Kashid & Agar [66]	Cyclohexane-Water	Not mentioned	Each phase Q = 5 to 200 ml/h
Salim et al. [67]	Oil-Water	Oil: ρ = 843 Kg/m^3 & μ = 0.0306 Pa.s Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s γ = 0.0301 N/m	Quartz channel, $Re_{Oil} = 0.3 - 9$, and $Re_{water} = 8 - 400$ Glass channel $Re_{Oil} = 0.32–4.5$ and $Re_{water} = 11–202$
Dessimoz et al. [68]	Water -Toluene	Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s	Each phase Q = 1 and 6 ml/h

	Water+ 0.15 M NaOH–Toluene Water - Toluene + CCl_3COOH 0.6 M	Toluene: ρ = 866.7 Kg/m^3 & μ = 0.00059 Pa.s γ = 0.0371 N/m	
Cubaud and Mason [69]	Isopropanol-PDMS oil Ethanol-PDMS oil PDMS oil-Ethanol+Glycerol PDMS oil – Glycerol PDMS oil-Water+Glycerol	Isopropanol: ρ = Not mentioned & μ = 0.00223 Pa.s PDMS oil: ρ = Not mentioned & μ = 0.5, 0.1 & 0.05 Pa.s respectively γ = 0.0022 & 0.002 N/m, Ethanol: ρ = Not mentioned & μ = 0.00116 Pa.s PDMS oil: ρ = Not mentioned & μ = 0.5 and 0.05 Pa.s γ = 0.0017 & 0.0015 N/m respectively, PDMS oil: ρ = Not mentioned & μ = 0.00082 & 0.00459 Pa.s Ethanol+glycerol: ρ = Not mentioned & μ = 0.11 Pa.s γ = 0.0072& 0.0084 N/m, PDMS oil: ρ = Not mentioned & μ = 0.00082, 0.00459, & 0.05 Pa.s respetuvely	Each phase Q = 0.1 to 200 µm/min

		Glycerol: ρ = Not mentioned & μ = 1.214 Pa.s γ = 0.0266 & 0.027 N/m, PDMS oil: ρ = Not mentioned & μ = 0.00082 Pa.s Water+glycerol: ρ = Not mentioned & μ = 0.36 & 0.077 Pa.s respectively, γ = 0.0282 & 0.0304 N/m	
Cherlo et. [70]	Kerosene-Water	Kerosene: ρ = 780 Kg/m^3 & μ = 0.001 Pa.s Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s γ = Not mentioned	Each phase Q = 5 to 350 mL/h
Kashid et al. [71]	Water -Toluene	Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s Toluene: ρ = 866.7 Kg/m^3 & μ = 0.00059 Pa.s γ = Not mentioned	Each phase Q = 1 to 18 mL/min

Foroughi and Kawaji [72]	Silicone oil- Water	Silicone oil: ρ = 970 Kg/m^3 & μ = 0.863 Pa.s Water: ρ = 999.1 Kg/m^3 & μ = 0.001 Pa.s γ = 0.043 N/m	Not specified exactly in the text
Javonovaic et al. [61]	Water - 2butanol+Toluene	Water: ρ = 0.998 Kg/m^3 & μ = 0.001 Pa.s 2butanol/Toluene: ρ = 0.867 Kg/m^3 & μ = 0.00059 Pa.s γ = Not mentioned	Each phase Q= 0.05 to 8.0 mL/min with organic to aqueous flow ratios of 1.0 to 9.0.
Sarkar et al. [73]	Water+Succinic acid-nbutanol	Water+Succinic acid: ρ = 981.69 Kg/m^3 & μ = 0.00144 Pa.s nbutanol: ρ = 837.01 Kg/m^3 & μ = 0.00334 Pa.s γ = 0.0017 N/m	Each phase Q = 0.05 and 1.6 mL/min
Tsaoulidis et al. [14]	Water- Ionic Liquid	Water: ρ = 1000 Kg/m^3 & μ = 0.001 Pa.s Ionic Liquid: ρ = 1420 Kg/m^3 & μ = 0.052 Pa.s	Q_{IL}= 0.065 cm^3/h to 11.31 cm^3/h , Q_{water} = 0.0169 cm^3/h1 to 214.9 cm^3/h

Derzsi et al. [74]	Polymeric solution-Silicone oil Polymeric solution-PDMS oil	γ = 0.01229 N/m Polymeric solution: ρ = range 1235.7-1188.8 Kg/m^3 & μ = range 0.178-0.0301 Pa.s Silicone oil: ρ = 776.15 Kg/m^3 & μ = 0.0041 Pa.s PDMS oil: ρ = range 959.2-986.95 Kg/m^3 & μ = range 0.0196-0.5072 Pa.s γ = varied based on the used combination	$Ca_{Continuous} = 10^{-4}$ to 10^{-1} and $Ca_{Dispersed} = 10^{-5}$ to 10^{-2}
Wehking et al. [58]	Silicone oil -Water Silicone oil- FC-43 Silicone oil- Aqueous solution with Alumina+oxide particles	Silicone oil: ρ= not mentioned Kinematic viscosity =10,20, and 100 cSt, viscosity ratios of water to silicone oil are 1/10, 1/20, and 1/100 respectively γ= 0.04304, 0.04222 and 0.04312 N/m respectively Kinematic viscosity of silicone oil =20, 50, and 100 cSt, viscosity ratios of FC-43 to silicone oil are 1/3.6, 1/9, and 1/18 respectively γ= 0.00542, 0.00568 and 0.00551 N/m respectively Kinematic viscosity of silicone oil= 10 & 20 cSt, viscosity ratios of Aqueous solution with Alumina+oxide particles	Each Phase Q= 100 to 9000 µL/h

		to silicone oil are 2/1, 1/1, and 1/4 respectively γ= 0.00951, 0.00961and 0.00811 N/m respectively	
Liu et al. [75]	SDS+ water - n-Octane-	SDS+ water: ρ = 991 Kg/m^3 & μ = 0.00092 Pa.s n-Octane: ρ = 700 Kg/m^3 & μ = 0.00051 Pa.s γ = 0.00575 N/m	$Q_{Dispersed}$ 1 to 16 ml/min. and $Q_{Continuous}$ 3 to 50 ml/min
Fu T. et al. [76]	carboxyl methyl cellulose (CMC) aqueous solutions-cyclohexane	CMC aqueous solutions (0.2%, 0.25%, 0.5%): ρ = 1000, 1002, and 1006 Kg/m^3 respectively & μ (at zero shear rate) = 0.001, 0.015 & 0.096 Pa.s respectively & μ (at infinite shear rate)= 0.068, 0.075 & 0.081 Pa.s respectively Cyclohexane: ρ = 787 Kg/m^3 & μ = not mentioned γ = not mentioned	$0.002185 < Ca_{Continous} < 0.09270, 0.003643 < Re_{Continuous} < 17.1528, 7.9605 \times 10^{-6} < We_{Continous} < 0.9770, 5.5181 \times 10^{-6} < Ca_{Dispersed} < 0.004258, 0.009630 < Re_{Dispersed} < 80.2537, 5.3142 \times 10^{-7} < We_{Dispersed} < 0.3417$
Poulffe et al. [77]	Water + NaOH-nButanol	Water+NaOH: ρ = 1020 Kg/m^3 & μ = 0.001124 Pa.s	Each phase Q= 0.40 to 22.15 mL/min Equal flow rates

	Water + NaOH - Toluene	nButanol: ρ = 806 Kg/m^3 & μ = 0.002571 Pa.s γ (water + NaOH- nbutanol)= 0.0018N/m Toluene: ρ = 862 Kg/m^3 & μ = 0.000552 Pa.s γ (water + NaOH- toluene)= 0.0354 N/m	
Poulffe et al. [78]	Water + NaOH +actate solution in either n-butanol, n hexanol, MTBE or Toluene	Water+NaOH: ρ = 1020 Kg/m^3 & μ = 0.001124 Pa.s nButanol: ρ = 806 Kg/m^3 & μ = 0.002571 Pa.s γ (water + NaOH- nbutanol)= 0.0018N/m Toluene: ρ = 862 Kg/m^3 & μ = 0.000552 Pa.s γ (water + NaOH- toluene)= 0.0354 N/m n-Hexanol: ρ = 815 Kg/m^3 & μ = 0.004539 Pa.s γ (water + NaOH- n-hexanol) = 0.0066 N/m	Each phase Q= 0.04 to 16 ml/min Equal flow rates

		MTBE: ρ = 737 Kg/m^3 & μ = 0.000369 Pa.s γ (water + NaOH- MTBE) = 0.0105 N/m	
Yagodnitsyna et al. [79]	Kerosene- Water; Paraffin oil – Water; Castor oil – Paraffin oil	Kerosene: ρ = 745 Kg/m^3 & μ = 0.000824Pa.s Water: ρ = 997 Kg/m^3 & μ = 0.000894 Pa.s γ (kerosene-water)= 0.0462 N/m Paraffin oil : ρ = 845 Kg/m^3 & μ = 0.11 Pa.s γ (paraffin oil-water)= 0.045.2 N/m Caster oil: ρ = 935 Kg/m^3 & μ = 0.65 Pa.s γ (paraffin oil-caster oil)= 0.017 N/m	$2 \times 10^{-2} < \mathrm{Re}_{\mathrm{water}} < 3.7 \times 10^{-2}, 1 \times 10^{-1} < \mathrm{Re}_{\mathrm{Kerosene}} < 2.5 \times 10^{2}, 2 \times 10^{-2} < \mathrm{Re}_{\mathrm{Water}} < 1.9 \times 10^{2}, 1.2 \times 10^{-4} < \mathrm{Re}_{\mathrm{Paraffin}} < 1 \times 10^{-1}, 2.1 \times 10^{-5} < \mathrm{Re}_{\mathrm{Paraffin}} < 1 \times 10^{-1}, 4 \times 10^{-6} < \mathrm{Re}_{\mathrm{caster}} < 1 \times 10^{-2}$
Alani Z.et al. [80]	DES-Fuel	DES: ρ = 1094 Kg/m^3 & μ = 0.2 Pa.s Fuel: ρ = 739.4 Kg/m^3 & μ = 0.0008 Pa.s	$\mathrm{u}_{\mathrm{Mix}} = 0.033 - 0.5$ m/s and solvent volume fraction 0.03–0.93

		γ = Not mentioned	
Wu et al. [81]	Water- Oil- Water + Glycerol- Oil- Water- Butanol - Water - Toluene Water - Hexane-	Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s Oil: ρ = 826 Kg/m^3 & μ = 0.0145 Pa.s γ (water- oil)= 0.0455 N/mWater+Glycerol: ρ = 1099.3 Kg/m^3 & μ = 0.00371 Pa.s γ (water+glycerol- oil)= 0.0443 N/m Butanol: ρ = 810 Kg/m^3 & μ = 0.00294 Pa.s γ (water- butanol)= 0.0018 N/m Toluene: ρ = 870 Kg/m^3 & μ = 0.00059 Pa.s γ (water- toluene)= 0.036 N/m Hexane: ρ = 654.8 Kg/m^3 & μ = 0.0003 Pa.s γ (water- hexane)= 0.051 N/m	$1.5 \times 10^{-5} Ca_{Water}$ $1.8 \times 10^{-2}, 4.4 \times 10^{-4} Ca_{Oil}$ $6.6 \times 10^{-2}, 5 \times 10^{-5}$ $Ca_{Water+Glycerol}$ $2.3 \times 10^{-2}, 1 \times 10^{-4} Ca_{Oil} 1 \times 10^{-2}, 3 \times 10^{-5}$ Ca_{Water} $6 \times 10^{-2}, 5.6 \times 10^{-4} Ca_{Butanol}$ $5.6 \times 10^{-2}, 6 \times 10^{-6} Ca_{Water} 1.5 \times 10^{-2}, 2 \times 10^{-6} Ca_{Toluene} 5.8 \times 10^{-3}, 1.3 \times 10^{-5} Ca_{Water} 2.5 \times 10^{-3}, 4 \times 10^{-6} Ca_{Hexane} 2.4 \times 10^{-4}$

Mahdi et al. [82]	Vaseline oil –Water	Vaseline oil: ρ = 850 Kg/m^3 & μ = 0.07 Pa.s Water: ρ = 1006 Kg/m^3 & μ = 0.00089 Pa.s γ = not mentioned	$2.78 \times 10^{-10}\ Q_{Vaseline\ oil}$ 1.94×10^{-9} m^3/s , $2.78 \times 10^{11} Q_{Water}$ 5.28×10^{-9} m^3/s
Kovalev V. et al. [65]	Castor oil-Water	Water: ρ = 997 Kg/m^3 & μ = 0.000894 Pa.s Castor oil: ρ = 935 Kg/m^3 & μ = 0.866 Pa.s γ = 0.01803 N/m	0.06 < $u_{Casteor\ oil}$ < 1.8 mm/s and 0.03 < u_{Water} < 0.8 mm/s
Cao et al. [83]	Water - Butanol Water- Toluene Water - Hexane	Water: ρ = 998.2 Kg/m^3 & μ = 0.001 Pa.s Butanol: ρ = 810 Kg/m^3 & μ = 0.00294 Pa.s γ (water- butanol)= 0.0018 N/m Toluene: ρ = 870 Kg/m^3 & μ = 0.00059 Pa.s γ (water- toluene)= 0.036 N/m Hexane: ρ = 654.8 Kg/m^3	Varied flow rate based on the channel diameter with range Q_{water}= 0- 60 ml/h and $Q_{organic}$ = 0- 12 ml/hr

		& μ = 0.0003 Pa.s γ (water- hexane)= 0.051 N/m	
Zhang et al. [84]	Toluene-Water Toluene – 92 wt %H_2SO_4 Ethyl acetate-Water	Properties at temperature of 0.5, 10, 25 ^oC respectively Toluene: ρ = not mentioned μ = 0.00076, 0.00067, & 0.00055 Pa.s, Ethyl acetate: ρ = not mentioned μ = 0.00056, 0.00050, & 0.00042 Pa.s, Water: ρ = not mentioned μ = 0.00176, 0.00131, & 0.00089 Pa.s, 92% H_2SO_4: ρ = not mentioned μ = 0.0458 , 0.030, & 0.018 Pa.s,	1.25×10^{-5} $Ca_{Continuous}$ 0.022, 1.5×10^{-5} $Re_{Continuous}$ 0.6, 1.5 $Ca_{Dispersed}$ 635, 0.07 $Re_{Dispersed}$ 635
Yagodnitsyna et al [85]	Ionic liquid-Water	Ionic liquid: ρ = 1420 Kg/m^3 & μ = 0.041 Pa.s water: ρ = 997 Kg/m^3 & μ = 0.000894 Pa.s γ = 0.0123 N/m	$5.8 \times 10^{-5} < u_{ionicliquid} < 5.8 \times 10^{-2}$ $5.8 \times 10^{-5} < u_{water} < 5.8 \times 10^{-1}$