

Table S1: Z-potential and Z-size values for all the samples with statistical interpretation

Sample	Zeta	Z-Ave d.nm
0,00	-33,00	170,60
0,00	-32,30	175,90
0,00	-34,10	174,90
0,00	-33,10	175,20
0,00	-34,10	163,60
0,00	-31,90	166,70
0,00	-34,50	189,50
0,00	-33,80	187,70
0,00	-35,50	187,10
0,10	-33,90	165,60
0,10	-33,00	159,50
0,10	-35,50	158,80
0,10	-36,30	142,90
0,10	-36,80	158,10
0,10	-37,80	162,30
0,10	-35,00	145,90
0,10	-35,40	142,40
0,10	-35,00	136,50
0,20	-35,10	134,00
0,20	-34,20	130,70
0,20	-36,10	132,00
0,20	-34,30	167,00
0,20	-37,40	156,60
0,20	-36,00	145,60
0,20	-35,60	151,40
0,20	-37,60	155,20
0,20	-36,90	160,20
0,40	-30,00	300,80
0,40	-28,40	304,00
0,40	-29,70	286,40
0,40	-30,00	211,60
0,40	-30,90	215,70
0,40	-30,60	215,60
0,40	-30,10	171,50
0,40	-32,50	166,70
0,40	-32,00	157,70

ANOVAOneWay (5/23/2021 11:05:33)						
Descriptive Statistics						
	N Analysis	N Missing	Mean	Standard Devi	SE of Mean	
0,00	6,00	3,00	-33,77	0,60	0,24	
0,10	6,00	3,00	-35,67	0,73	0,30	
0,20	6,00	3,00	-35,22	0,83	0,34	
0,40	6,00	3,00	-30,22	0,44	0,18	

ANOVAOneWay (5/23/2021 10:22:36)						
Descriptive Statistics						
	N Analysis	N Missing	Mean	Standard Devi	SE of Mean	
0,00	9,00	0,00	-33,59	1,13	0,38	
0,10	9,00	0,00	-35,41	1,45	0,48	
0,20	9,00	0,00	-35,91	1,24	0,41	
0,40	9,00	0,00	-30,47	1,23	0,41	

ANOVAOneWay (5/23/2021 10:22:36)

ANOVA

Means Comparisons

Grouping Letters Table

Tukey Test Mean	Groups	Groups	Groups
0,40	-30,47	A	
0,00	-33,59		B
0,10	-35,41		C
0,20	-35,91		C

ANOVAOneWay (5/23/2021 11:15:28)						
Descriptive Statistics						
	N Analysis	N Missi	Mean	Standard t	SE of Mean	
0,00	9,00	0,00	176,80	9,41	3,14	
0,10	9,00	0,00	152,44	10,50	3,50	
0,20	9,00	0,00	148,08	13,25	4,42	
0,40	7,00	2,00	203,60	44,18	16,70	

ANOVA

Means Comparisons

Grouping Letters Table

Tukey Test	Mean	Groups	Groups	Groups
0,40	203,60	A		
0,00	176,80	A	B	
0,10	152,44		B	C
0,20	148,08			C

Salt Concentration	ζ-potential		Size	
M	mV		d.nm	
0	-33,8	±0.6	176,8	±9.4
0,1	-35,7	±0.7	152,4	±10.5
0,2	-35,2	±0.8	148,1	±13.2
0,4	-30,2	±0.4	203,6	±44.2

Table S2: DLS analysis and test parameters and conditions

SPPH														
Record	Type	Sample Na	Measurement Date and Tir T	°C	ZP	Mob	Cond							
					mV	μmcm/Vs	mS/cm							
91	Zeta	SPPH 0.01%	Monday, May 3, 2021 3:34		23	-33	-2,486	0,299						
92	Zeta	SPPH 0.01%	Monday, May 3, 2021 3:36		23	-32,3	-2,436	0,304						
93	Zeta	SPPH 0.01%	Monday, May 3, 2021 3:37		23	-34,1	-2,571	0,307						
4	Zeta	SPPH 0.01%	Wednesday, May 12, 2021		23	-33,1	-2,494	0,293						
5	Zeta	SPPH 0.01%	Wednesday, May 12, 2021		23	-34,1	-2,569	0,297						
6	Zeta	SPPH 0.01%	Wednesday, May 12, 2021		23	-31,9	-2,407	0,295						
203	Zeta	PPHS 0.01%	Friday, April 23, 2021 4:15:		23	-34,5	-2,6	0,639						
204	Zeta	PPHS 0.01%	Friday, April 23, 2021 4:17:		23	-33,8	-2,55	0,653						
205	Zeta	PPHS 0.01%	Friday, April 23, 2021 4:17:		23	-35,5	-2,674	0,663						
Record	Type	Sample Na	Measurement Date and Tir T	°C	Z-Ave	PdI	Pk 1 Mean	Pk 2 Mean	Pk 3 Mean	Pk 1 Area	Pk 2 Area	Pk 3 Area	Aggregatio	Scattering Angle
					d.nm		d.nm	d.nm	d.nm	Percent	Percent	Percent	*	°
206	Size	PPHS 0.01%	Friday, April 23, 2021 4:23:		25	170,6	0,167	206,4	0	0	100	0	0	173
207	Size	PPHS 0.01%	Friday, April 23, 2021 4:25:		25	175,9	0,167	212,7	0	0	100	0	0	173
208	Size	PPHS 0.01%	Friday, April 23, 2021 4:27:		25	174,9	0,216	227,9	0	0	100	0	0	173
76	Size	SPPH 0.01%	Monday, May 3, 2021 2:49		25	175,2	0,35	238	44,6	4800	91,3	5,9	2,8	173
77	Size	SPPH 0.01%	Monday, May 3, 2021 2:51		25	163,6	0,343	221,3	4644	0	97,3	2,7	0	173
78	Size	SPPH 0.01%	Monday, May 3, 2021 2:53		25	166,7	0,292	251,3	33,2	4418	95,6	3,3	1,1	173
72	Size	SPPH 0.01%	Wednesday, May 12, 2021		25	189,5	0,306	289,7	0	0	100	0	0	173
73	Size	SPPH 0.01%	Wednesday, May 12, 2021		25	187,7	0,355	272,4	35,27	4840	94,8	3,9	1,3	173
74	Size	SPPH 0.01%	Wednesday, May 12, 2021		25	187,1	0,355	271,9	39,86	4638	93,1	5,1	1,8	173
SPPH 0.1M NaCl														
Record	Type	Sample Na	Measurement Date and Tir T	°C	Z-Ave	PdI	Pk 1 Mean	Pk 2 Mean	Pk 3 Mean	Pk 1 Area	Pk 2 Area	Pk 3 Area	Aggregatio	Scattering Angle
					d.nm		d.nm	d.nm	d.nm	Percent	Percent	Percent	*	°
70	Size	PPHS 0.01%	Friday, April 23, 2021 4:31:		25	165,6	0,283	197,3	3830	0	93,2	6,8	0	173
71	Size	PPHS 0.01%	Friday, April 23, 2021 4:33:		25	159,5	0,285	219,1	4141	0	97,1	2,9	0	173
72	Size	PPHS 0.01%	Friday, April 23, 2021 4:36:		25	158,8	0,283	225,8	4153	30,09	96	2,4	1,6	173
55	Size	SPPH 0.01%	Wednesday, May 12, 2021		25	142,9	0,295	252,5	0	0	100	0	0	173
56	Size	SPPH 0.01%	Wednesday, May 12, 2021		25	158,1	0,312	235,2	4831	22,34	97,8	1,1	1,1	173
57	Size	SPPH 0.01%	Wednesday, May 12, 2021		25	162,3	0,363	230,7	4633	0	97,5	2,5	0	173
64	Size	SPPH 0.01%	Monday, May 3, 2021 2:12		25	145,9	0,26	197,4	4673	0	98,3	1,7	0	173
65	Size	SPPH 0.01%	Monday, May 3, 2021 2:15		25	142,4	0,256	192,9	33,68	0	96,5	3,5	0	173
66	Size	SPPH 0.01%	Monday, May 3, 2021 2:17		25	136,5	0,249	186,7	0	0	100	0	0	173
Record	Type	Sample Na	Measurement Date and Tir T		ZP	Mob	Cond							
15	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:4:		23	-33,9	-2,556	0,355						
17	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:4:		23	-33	-2,486	0,354						
18	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:4:		23	-35,5	-2,678	0,357						
32	Zeta	SPPH 0.01%	Wednesday, May 12, 2021		23	-36,3	-2,737	0,294						
33	Zeta	SPPH 0.01%	Wednesday, May 12, 2021		23	-36,8	-2,776	0,299						
34	Zeta	SPPH 0.01%	Wednesday, May 12, 2021		23	-37,8	-2,847	0,302						
35	Zeta	PPHS 0.01%	Friday, April 23, 2021 2:29:		23	-35	-2,635	0,455						
36	Zeta	PPHS 0.01%	Friday, April 23, 2021 2:30:		23	-35,4	-2,671	0,461						
38	Zeta	PPHS 0.01%	Friday, April 23, 2021 2:47:		23	-35	-2,638	0,448						

SPPH 0.2M NaCl													
Record	Type	Sample NaI	Measurement Date and Tin T °C	ZP mV	Mob μmcm/Vs	Cond mS/cm							
46	Zeta	PPHS 0.01%	Friday, April 23, 2021 3:56:	23	-35,1	-2,647	0,556						
47	Zeta	PPHS 0.01%	Friday, April 23, 2021 3:58:	23	-34,2	-2,575	0,57						
48	Zeta	PPHS 0.01%	Friday, April 23, 2021 3:59:	23	-36,1	-2,722	0,578						
22	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:5:	23	-34,3	-2,584	0,48						
23	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:5:	23	-37,4	-2,821	0,49						
24	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:5:	23	-36	-2,717	0,496						
41	Zeta	SPPH 0.01%	Wednesday, May 12, 2021	23	-35,6	-2,68	0,606						
42	Zeta	SPPH 0.01%	Wednesday, May 12, 2021	23	-37,6	-2,837	0,624						
45	Zeta	SPPH 0.01%	Wednesday, May 12, 2021	23	-36,9	-2,783	0,634						
Record	Type	Sample NaI	Measurement Date and Tin T °C	Z-Ave d.nm	Pdl	Pk 1 Mean d.nm	Pk 2 Mean d.nm	Pk 3 Mean d.nm	Pk 1 Area Percent	Pk 2 Area Percent	Pk 3 Area Percent	Aggregatio	Scattering Angle °
73	Size	PPHS 0.01%	Friday, April 23, 2021 4:41:	25	134	0,226	162,7	0	100	0	0		173
74	Size	PPHS 0.01%	Friday, April 23, 2021 4:43:	25	130,7	0,225	161,9	4851	0	98,8	1,2	0	173
75	Size	PPHS 0.01%	Friday, April 23, 2021 4:45:	25	132	0,22	164,8	0	100	0	0		173
87	Size	SPPH 0.01%	Monday, May 3, 2021 3:20:	25	167	0,298	220	4983	0	97,6	2,4	0	173
89	Size	SPPH 0.01%	Monday, May 3, 2021 3:28:	25	156,6	0,294	220,8	4850	19,64	98,6	1,3	0,1	173
90	Size	SPPH 0.01%	Monday, May 3, 2021 3:30:	25	145,6	0,26	182,7	4691	0	97,7	2,3	0	173
65	Size	SPPH 0.01%	Wednesday, May 12, 2021	25	151,4	0,39	278,7	0	100	0	0		173
66	Size	SPPH 0.01%	Wednesday, May 12, 2021	25	155,2	0,378	216,7	2537	33,71	87,7	8,1	4,2	173
67	Size	SPPH 0.01%	Wednesday, May 12, 2021	25	160,2	0,385	246,5	4470	0	98,5	1,5	0	173
SPPH 0.4M NaCl													
Record	Type	Sample NaI	Measurement Date and Tin T °C	ZP mV	Mob μmcm/Vs	Cond mS/cm							
51	Zeta	PPHS 0.01%	Friday, April 23, 2021 4:04:	23	-30	-2,262	0,0968						
53	Zeta	PPHS 0.01%	Friday, April 23, 2021 4:07:	23	-28,4	-2,145	0,0965						
54	Zeta	PPHS 0.01%	Friday, April 23, 2021 4:08:	23	-29,7	-2,238	0,0968						
25	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:5:	23	-30	-2,259	0,775						
26	Zeta	SPPH 0.01%	Monday, May 3, 2021 12:5:	23	-30,9	-2,327	0,81						
31	Zeta	SPPH 0.01%	Monday, May 3, 2021 1:06:	23	-30,6	-2,31	0,789						
25	Zeta	SPPH 0.01%	Wednesday, May 12, 2021	23	-30,1	-2,272	0,607						
26	Zeta	SPPH 0.01%	Wednesday, May 12, 2021	23	-32,5	-2,452	6,30E-01						
27	Zeta	SPPH 0.01%	Wednesday, May 12, 2021	23	-32	-2,413	0,639						
Record	Type	Sample NaI	Measurement Date and Tin T °C	Z-Ave d.nm	Pdl	Pk 1 Mean d.nm	Pk 2 Mean d.nm	Pk 3 Mean d.nm	Pk 1 Area Percent	Pk 2 Area Percent	Pk 3 Area Percent	Aggregatio	Scattering Angle °
76	Size	PPHS 0.01%	Friday, April 23, 2021 4:49:	25	300,8	0,361	514,8	0	100	0	0		173
77	Size	PPHS 0.01%	Friday, April 23, 2021 4:51:	25	304	0,475	540,6	4421	0	98,1	1,9	0	173
78	Size	PPHS 0.01%	Friday, April 23, 2021 4:53:	25	286,4	0,391	497,1	0	100	0	0		173
68	Size	SPPH 0.01%	Wednesday, May 12, 2021	25	211,6	0,367	335,9	0	100	0	0		173
69	Size	SPPH 0.01%	Wednesday, May 12, 2021	25	215,7	0,367	325,9	39,23	4315	94,5	3	2,5	173
70	Size	SPPH 0.01%	Wednesday, May 12, 2021	25	215,6	0,298	336,9	30,77	0	97,4	2,6	0	173
82	Size	SPPH 0.01%	Monday, May 3, 2021 3:07:	25	171,5	0,338	291,2	4105	0	99,1	0,9	0	173
83	Size	SPPH 0.01%	Monday, May 3, 2021 3:09:	25	166,7	0,263	237,4	4004	0	98,4	1,6	0	173
84	Size	SPPH 0.01%	Monday, May 3, 2021 3:12:	25	157,7	0,259	212,5	0	100	0	0		173

Table S3: Frequency dependence of dilatational viscoelastic properties of the samples

Salt Concentræ M	Frequency Hz	E' (average) mN/m	std	E'' (average) mN/m	std	tand
	0	0.1	9,6198	246.036	5,0826	0.88275
	0	0.2	10,7259	188.082	5,2988	1.294
	0	0.4	14,5634	179.493	8,5140	142.339
	0	1	19,8010	2.198	10,5730	268.971
	0.1	0.1	7,9068	0.28535	3,5076	0.27656
	0.1	0.2	8,5116	157.073	4,7065	0.54741
	0.1	0.4	11,0582	0.85369	6,6130	0.53446
	0.1	1	16,9223	126.573	8,6703	297.983
	0.2	0.1	7,9634	0.71505	3,1260	0.66574
	0.2	0.2	8,7298	157.165	4,3210	0.54683
	0.2	0.4	11,0582	0.85369	7,4056	147.573
	0.2	1	14,7390	128.494	9,9503	247.262
	0.4	0.1	7,4638	0.5794	3,3268	0.69668
	0.4	0.2	8,5980	0.49679	4,4820	12.911
	0.4	0.4	12,4348	159.882	5,7188	111.906
	0.4	1	15,4740	0.28526	7,2476	116.041

Table S4: tangent loss factor values for dilatational viscoelastic properties

frequency 0.1		frequency 0.2		frequency 0.4		frequency 1	
tand	salt	tand	salt	tand	salt	tand	salt
0,53	0	0,49	0	0,58	0	0,53	0
0,44	0,1	0,55	0,1	0,6	0,1	0,51	0,1
0,39	0,2	0,49	0,2	0,67	0,2	0,68	0,2
0,45	0,4	0,52	0,4	0,46	0,4	0,47	0,4

Figure S1: Tangent loss factor evolution in function of salt concentration for all the considered frequencies

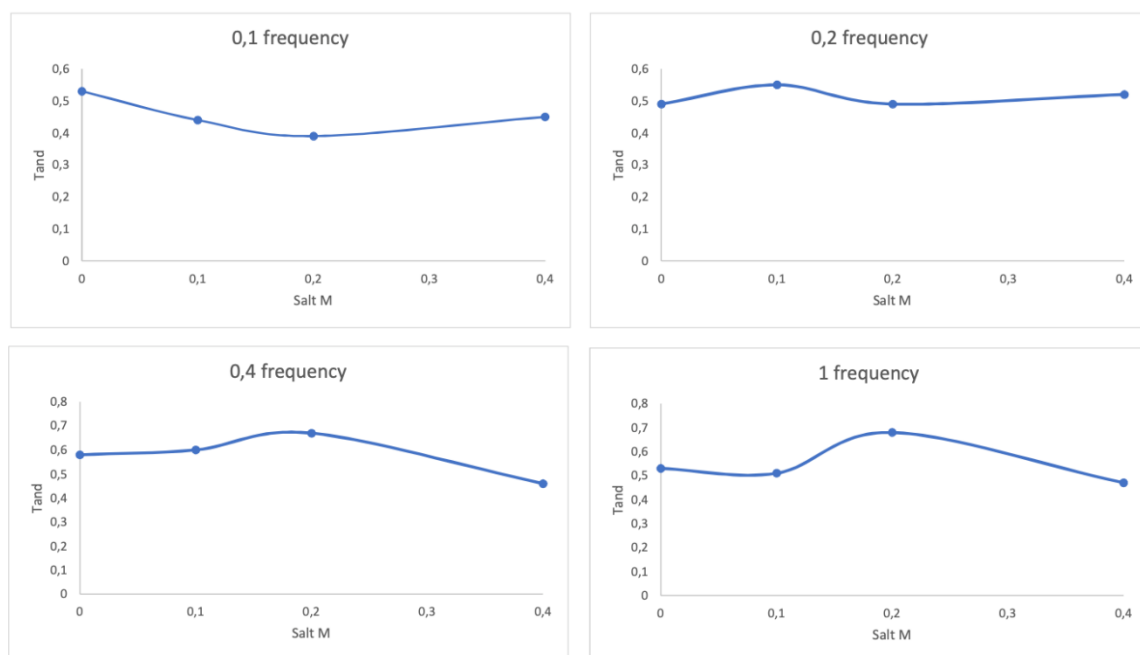


Figure S2: Particle size distribution for SPPH sample with 0 M of NaCl concentration.

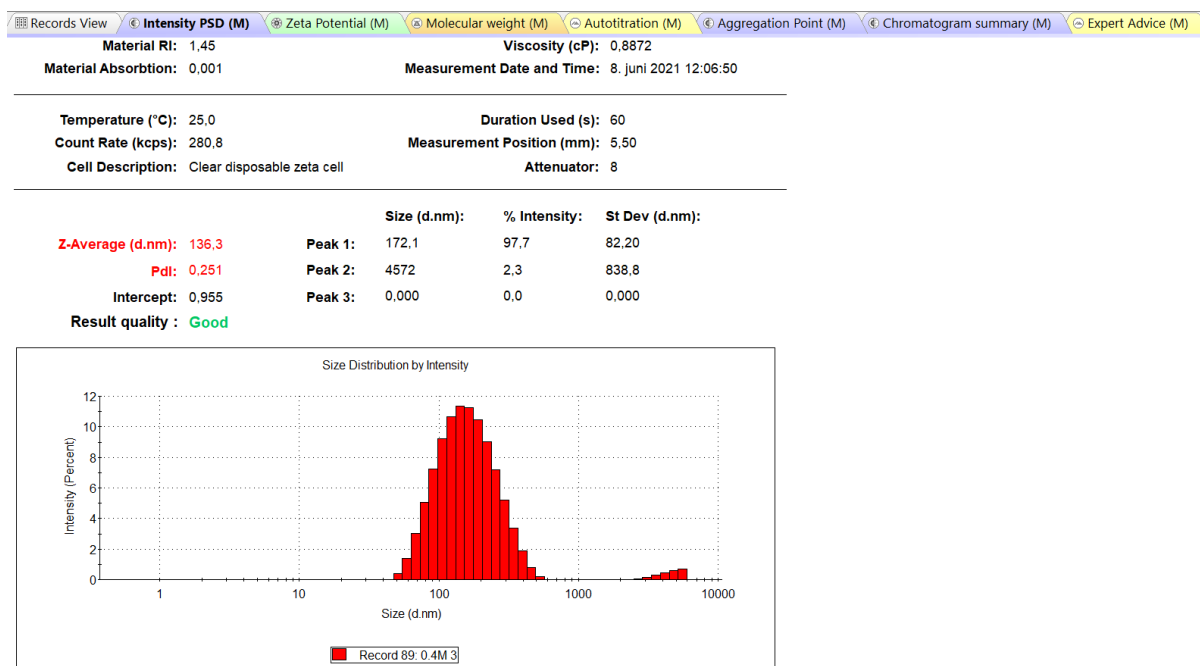


Figure S3: Interfacial Tension Values over time of all of the samples.

