

Article

The Role of Formulations in the Ageing Process of Vinyl Acetate Emulsions: A Comprehensive Multivariate Study

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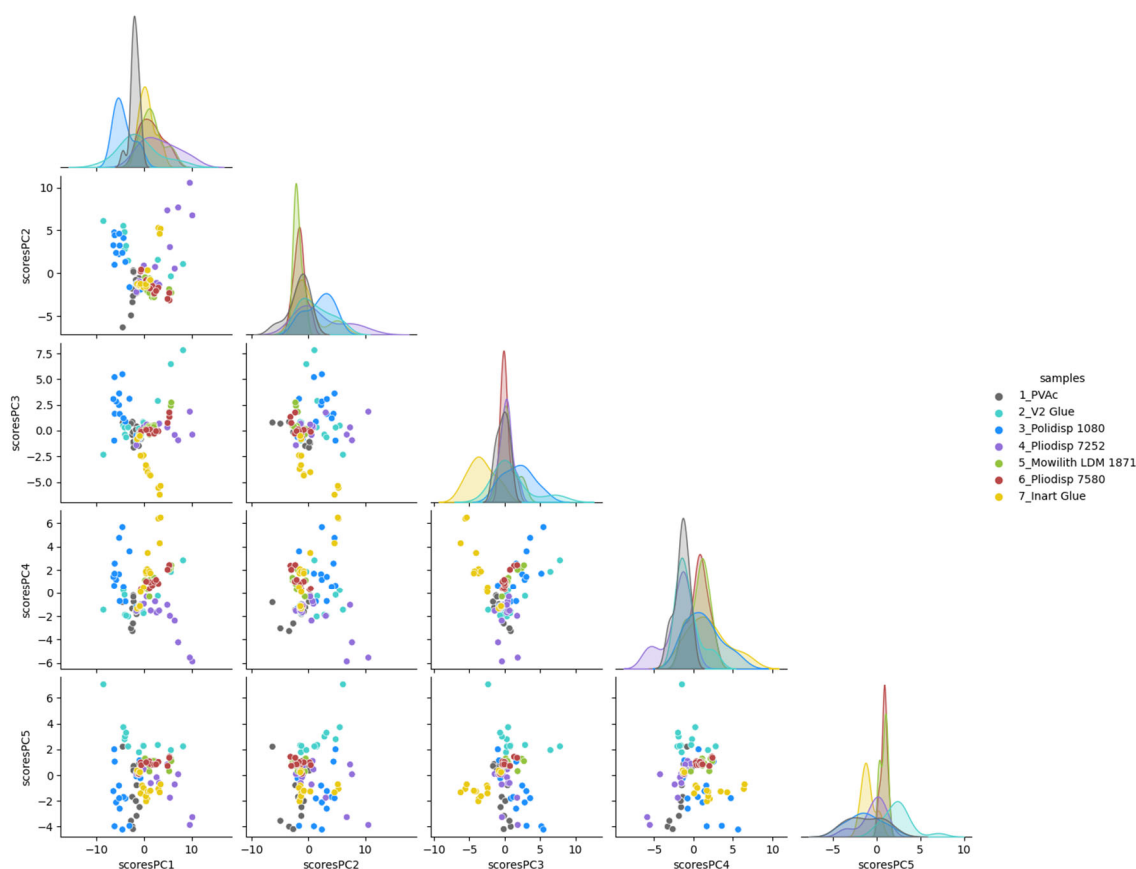


Figure S1. Score plots of all combinations of PCs 1-5 including the distribution of samples within each PC

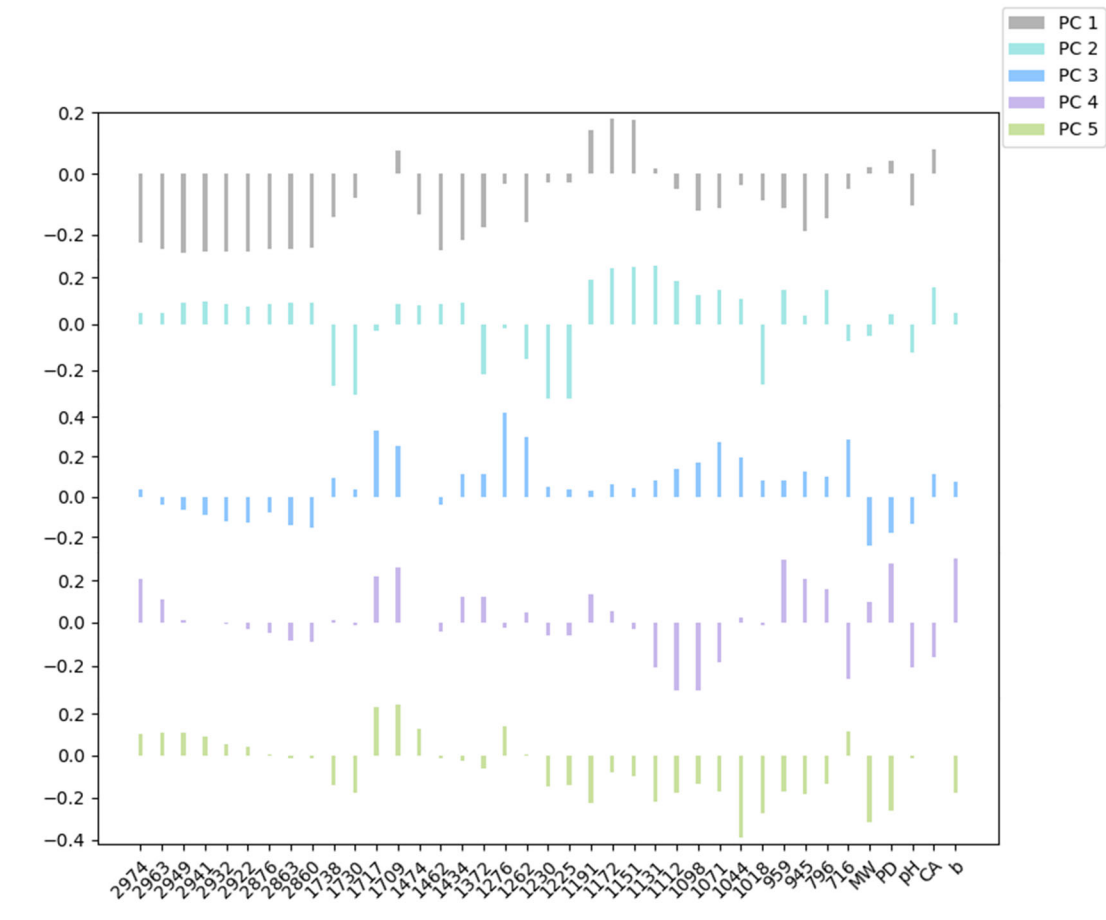
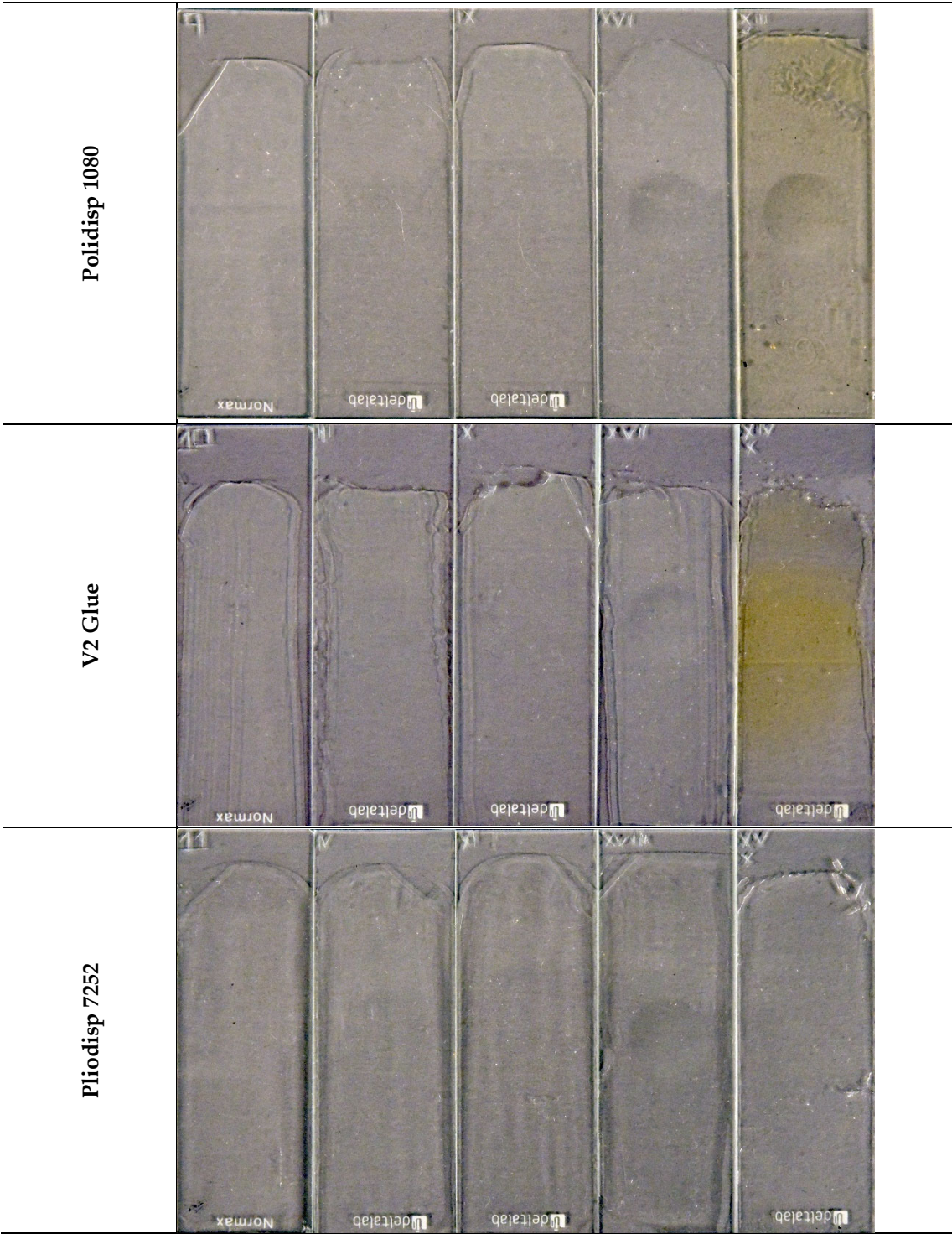


Figure S2. Loadings of PCs 1-5.

Table S1. Images of the films on glass slides during the ageing experiment showing the physical changes, namely yellowing (Polidisp 1080, V2 Glue and Inart Glue) and brittleness (PVAc, Pliodisp 7252 and Pliodisp 7580).

	t = 0h	t = 500h	t = 1000h	t = 2000h	t = 4000h
PVAc Pure Homopolymer					



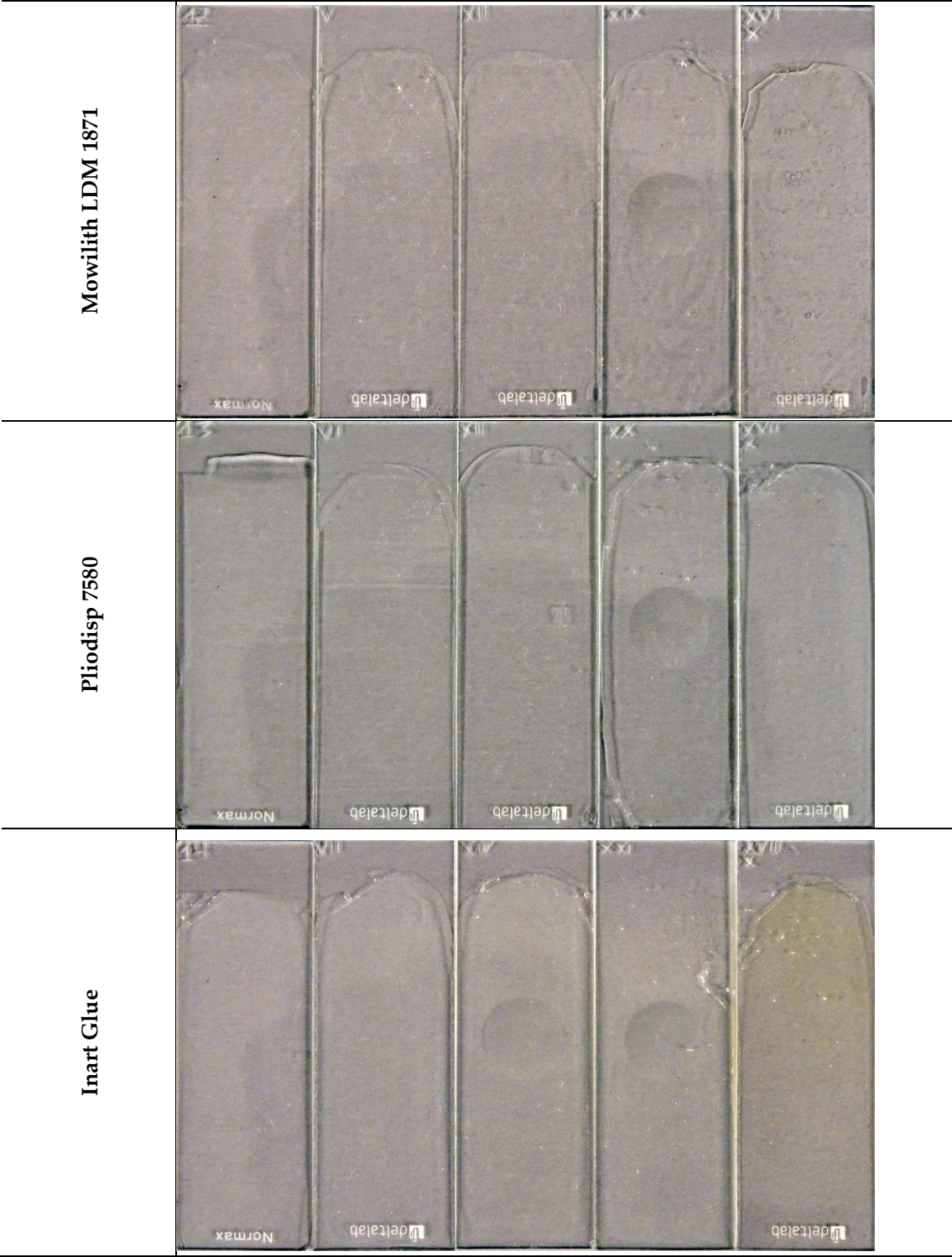


Table S2. Percentage variation for pH, contact angle (CA) and colour (b* value) measurements, molecular weight (MW), and polydispersity (PD) measurements for all VAc-based emulsions from t = 0 to t = 4000 hours ($(V_{4000h}-V_{0h})/V_{0h}*100$) (V_t = measured values after t hours of ageing)

	Variation between aged (4000 h) and unaged samples (%)				
	pH	CA	b* value	Mw	PD
PVAc pure homopolymer	15.94	-7.42	-9.43	-4.01	7.10
V2 glue	- 43.96	109.65	41.53	-88.51	1.06
Polidisp 1080	-34.68	10.76	177.00	-23.26	94.02
Pliodisp 7252	-17.34	509.00	-4.05	-12.40	16.66
Mowilith LDM 1871	-6.16	47.38	12.11	-40.36	13.92
Pliodisp 7580	-9.33	-58.30	-2.45	-45.68	26.14
Inart glue	-32.47	1.45	65.02	88.16	135.26

Table S3. Number-average molecular weight (M_n), weight-average molecular weight (M_w) and Polydispersity (PD) for samples over irradiation time.

		M_n	M_w	PD
PVAc	0h	47434	93079	1.97
	500h	44083	87569	1.99
	1000h	39801	85569	2.15
	2000h	43382	86941	2.01
	4000h	42439	89346	2.11
V2 Glue	0h	69061	325279	4.71
	500h	34125	143315	4.20
	1000h	21008	79678	3.80
	2000h	20010	81002	4.05
	4000h	7862	37374	4.76
Polidisp 1080	0h	47122	117745	2.51
	500h	41294	124656	3.04
	1000h	41250	115110	2.79
	2000h	36336	144665	3.99
	4000h	18598	90347	4.87
Pliodisp 7252	0h	25669	50917	1.98
	500h	24996	60371	2.42
	1000h	23415	59520	2.54
	2000h	23364	64393	2.76
	4000h	19318	44599	2.31
Mowilith LDM 1871	0h	9350	32896	3.52
	500h	10272	33143	3.23
	1000h	8675	28279	3.27
	2000h	8388	30854	3.68
	4000h	4902	19618	4.01

Plodisp 7580	0h	31890	76802	2.41
	500h	22651	70266	3.11
	1000h	20253	65448	3.23
	2000h	18747	66642	3.59
	4000h	13739	41712	3.04
INART Glue	0h	49965	103353	2.07
	500h	45915	207454	4.52
	1000h	52714	256959	4.88
	2000h	45906	234566	5.11
	4000h	40086	194474	4.87

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