

# Study of the long-term aging of polypropylene-made disposable surgical masks and filtering facepiece respirators

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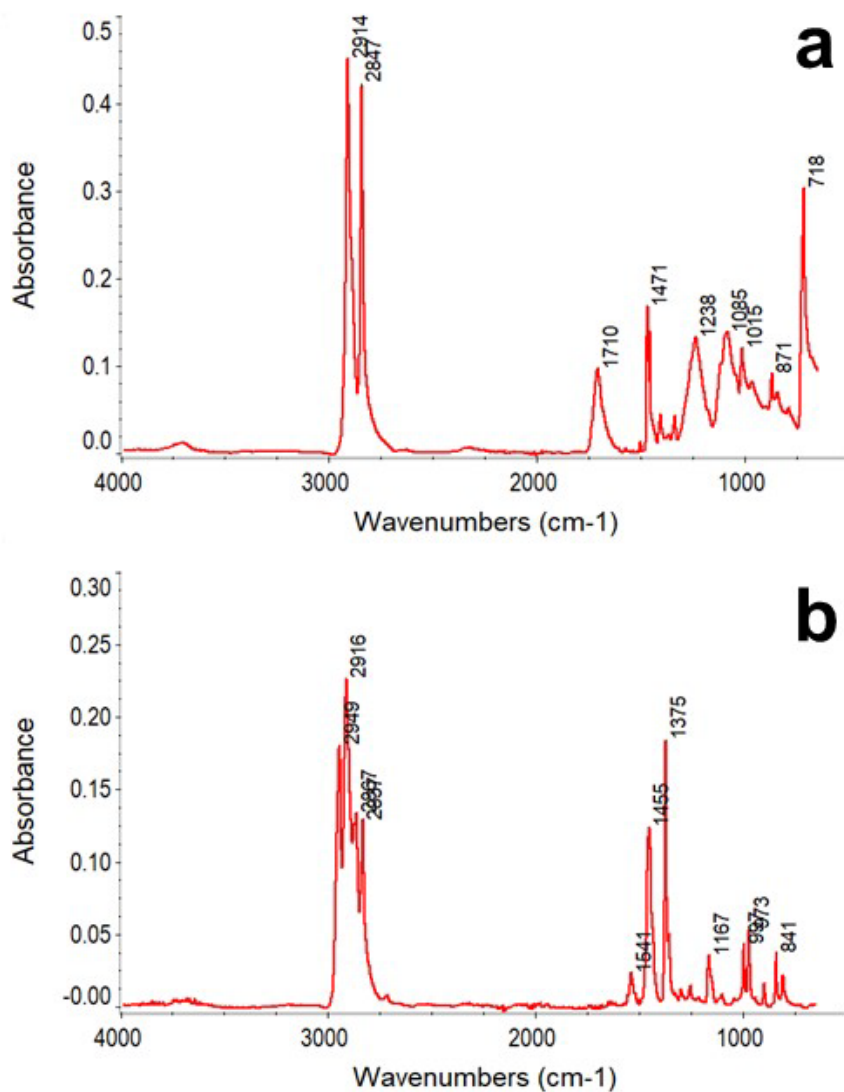
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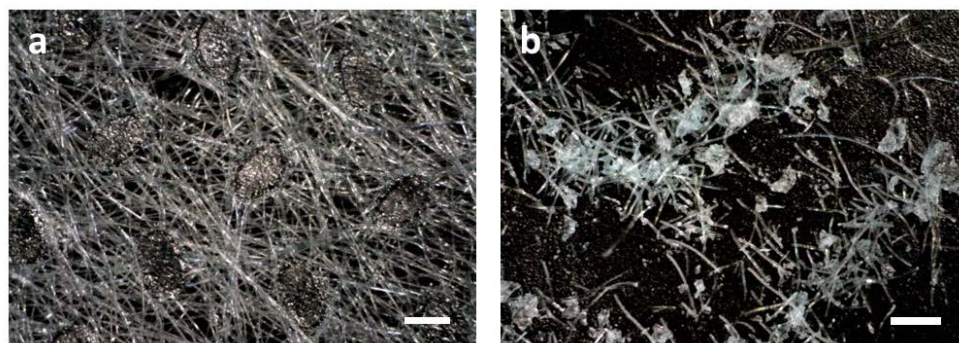
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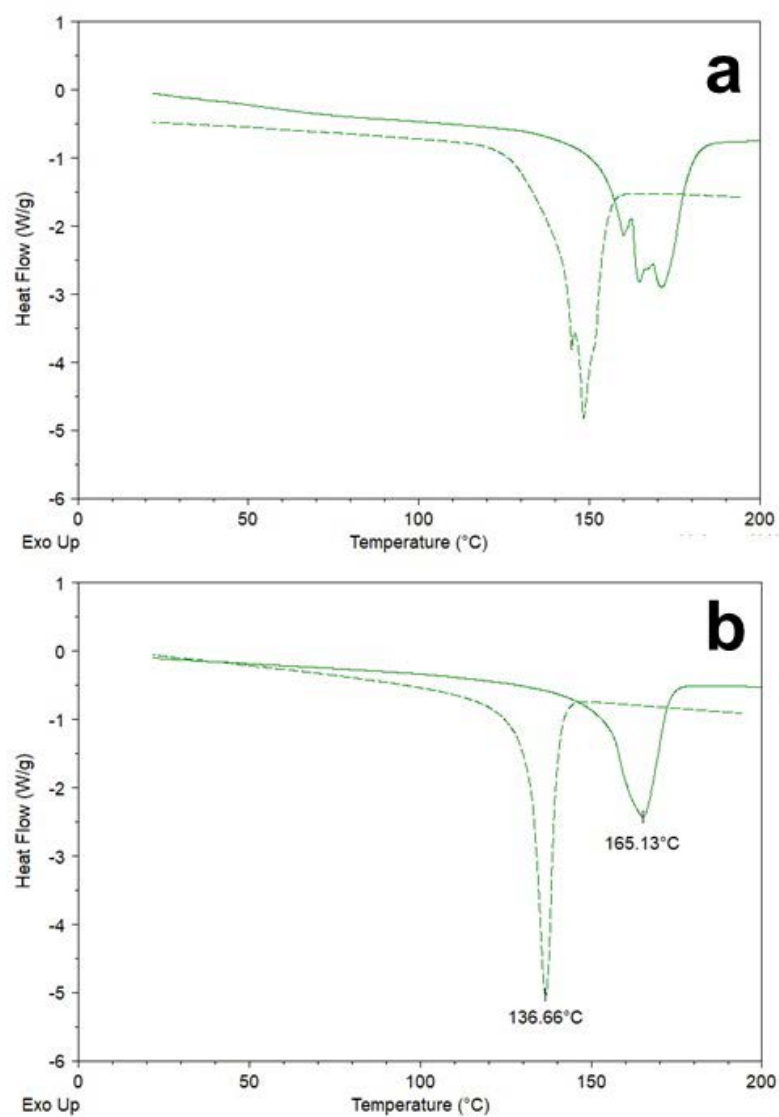
**Supplementary Materials:** Figure S1: ATR-FTIR spectra of layer C2 and C3; Figure S2: optical micrograph of B1 and the dust formed from the extensive rupture of its fibers; Figure S3: DSC curves of A1 before and after 1000 h isothermal treatment; Table S1: evolution of the CIELAB coordinates of PP layers as a function of the time of isothermal treatment at 110°C; Table S2: evolution of the CIELAB coordinates of PP layers as a function of the time of accelerated photoaging at 24°C.



**Figure S1.** ATR-FTIR spectra of layer C2 (a) and C3 (b).



**Figure S2.** Optical micrograph of B1 (a) and the dust formed from the extensive rupture of its fibers (b). Scale bar 0.5 mm.



**Figure S3.** DSC curves of A1 before (solid line) and after 1000 h isothermal treatment (dashed line): first scan (a) and second scan (b).

**Table S1.** Evolution of the CIELAB coordinates of PP layers as a function of the time of isothermal treatment at 110°C.

Time (h)	A1				A2				B1				C1				C3			
	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$
20	0.06	0.74	0.86	1.14	-0.63	0.25	0.25	0.72	-0.41	0.24	-0.24	0.53	-0.31	0.23	0.48	0.62	-0.30	0.22	0.21	0.43
100	-0.24	-0.45	-0.56	0.76	-0.04	0.05	0.95	0.95	0.41	0.05	0.75	0.86	-0.52	0.10	0.66	0.85	-0.07	-0.14	2.30	2.31
150	-0.01	0.46	-0.89	1.00	-0.06	-0.03	1.39	1.39	-0.32	0.03	0.29	0.43	-0.12	0.11	0.29	0.33	-0.29	-0.29	2.46	2.49
200	0.97	1.84	1.80	2.75	-0.40	-0.11	0.91	1.00	-0.11	-0.03	0.12	0.17	-0.20	0.05	0.33	0.39	-0.66	-0.57	2.43	2.58
250	-3.21	-5.02	-0.24	5.96	-0.39	-0.11	1.58	1.63	-0.45	0.02	-0.07	0.46	-0.02	0.05	0.39	0.39	-0.90	-0.38	2.40	2.59
325	-3.94	-6.07	2.21	7.57	-0.31	-0.36	1.63	1.70	-0.46	-0.09	0.22	0.52	-0.22	-0.05	0.34	0.41	-0.86	-0.34	2.38	2.55
500	-4.75	-8.08	4.35	10.33	-0.57	-0.37	1.80	1.92	-0.48	-0.14	0.10	0.51	-0.60	-0.81	3.06	3.22	-0.86	-0.32	2.58	2.74
750	-4.94	-8.58	6.39	11.78	-0.64	-0.40	1.25	1.46	-0.27	0.07	-0.17	0.33	-1.58	-3.24	14.10	14.55	-0.82	-0.41	2.50	2.66
875	-7.66	-13.93	7.49	17.57	-0.89	-0.27	1.20	1.52	-0.20	-0.05	0.66	0.69	-1.91	-3.04	14.23	14.68	-0.71	-0.39	3.02	3.13
1000	-13.38	-19.31	9.11	25.20	-0.36	-0.41	2.40	2.46	-0.40	-0.24	0.76	0.89	-1.51	-3.37	15.50	15.93	-0.81	-0.56	3.54	3.67

**Table S2.** Evolution of the CIELAB coordinates of PP layers as a function of the time as a function of the time of accelerated photoaging at 24°C.

Time (h)	A1				A2				B1				C1				C3			
	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$	$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	$\Delta E$
100	-0.60	-0.19	-0.34	0.72	-0.15	-0.07	0.31	0.35	-0.09	-0.11	0.27	0.31	0.20	-0.04	0.33	0.39	-0.36	-0.09	-0.01	0.37
250	-0.90	-0.12	-0.21	0.93	-0.08	-0.12	1.07	1.08	-0.33	-0.06	-0.05	0.34	-0.16	0.04	0.13	0.21	-0.34	-0.20	1.15	1.22
500	-3.52	0.97	0.23	3.66	- <sup>1</sup>	- <sup>1</sup>	- <sup>1</sup>	- <sup>1</sup>	-0.14	-1.48	0.10	1.49	-2.01	0.03	0.01	2.01	-0.89	-0.06	0.06	0.89
750	-10.36	2.44	2.03	10.84	- <sup>1</sup>	- <sup>1</sup>	- <sup>1</sup>	- <sup>1</sup>	1.21	-1.55	0.19	1.98	-3.87	0.07	0.37	3.89	-2.40	-0.13	-0.04	2.40
1000	-17.53	0.13	-1.41	17.59	- <sup>1</sup>	- <sup>1</sup>	- <sup>1</sup>	- <sup>1</sup>	-7.18	-1.56	-0.50	7.36	-5.44	-0.11	-0.51	5.46	-1.93	-0.02	-1.10	2.22

<sup>1</sup> no measurements were possible due to extensive embrittlement and pulverization of the sample.