SUPPORTING INFORMATION

Efficient flame retardant thin films synthesized by atmospheric pressure PECVD through the high co-deposition rate of hexamethyldisiloxane and triethylphosphate on polycarbonate and polyamide-6 substrates

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EXPERIMENTAL METHODS

UL-94 V. The Underwriters Laboratories-94 (UL-94) vertical burning test is performed on test specimens (100 × 15 × 5 mm^3) vertically suspended above a cotton patch, used to identify burning droplets. The classification is defined according to the American National Standard UL 94-2006.

RESULTS AND DISCUSSION

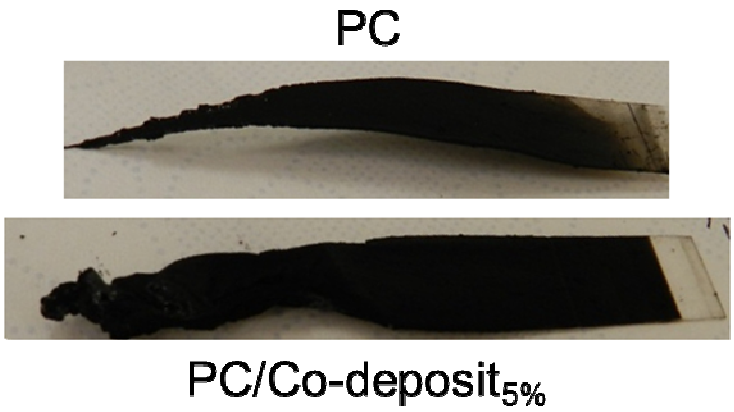

Figure S1. Pictures corresponding to a PC sample and of one of the five tested PC/Co-deposit$_{5\%}$ samples submitted to the UL-94 vertical test.

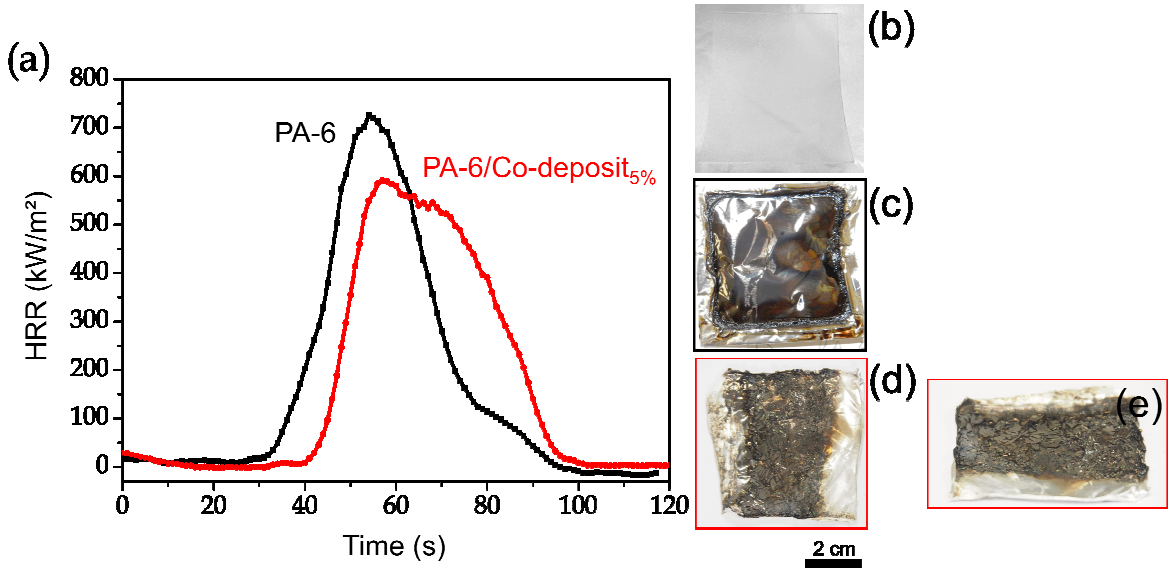

Figure S2. (a) Heat release rate (HRR) as a function of exposure time to an external heat flux of 35 $kW \cdot m^{-2}$ for different materials: polyamide-6 (PA-6, black) and co-deposit$_{5\%}$-coated PA-6 (PA-6/Co-deposit$_{5\%}$, red). Pictures associated to the tested samples are presented and are referred as follow: (b) virgin PA-6 before fire testing, (c) virgin PA-6 residue after fire testing, (d) top view and (e) tilted view of the co-deposit$_{5\%}$-coated PA-6 residue after fire testing .

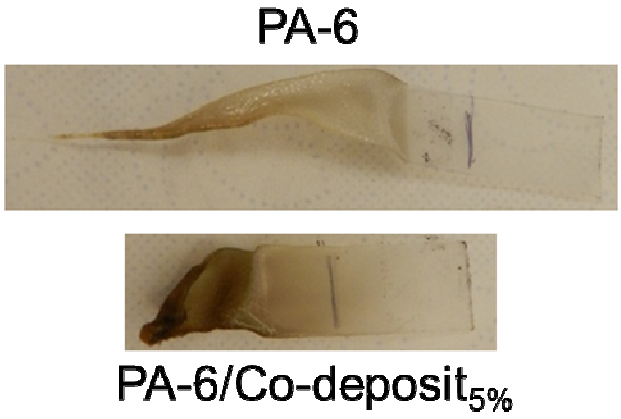

Figure S3. Pictures corresponding to a PA-6 sample and of one of the five tested PA-6/Co-deposit$_{5\%}$ samples submitted to the UL-94 vertical test.

Table S1. Concentration of the different siloxane units present in the thin films elaborated from the solution HMDSO:TEP (75:25) and for different oxygen concentrations introduced into the discharge. Table associated to Figure 7.

	Relative concentration (%area)				
N_2-O_2 (%)	(M)	(D)	(T)	(Q)	(Z)
100 – 0	26	42	22	6	4
95 – 5	39	41	17	3	0
50 – 50	28	40	25	8	0

Table S2. Cone calorimeter results associated to Figure 8.

	TTI (s)	pHRR (kW/m²)
PC	40 (± 8)	242 (± 20)
PC / $ppHMDSO_{5\%}$	87 (± 21)	213 (± 18)
PC / $Co\text{-}deposit_{5\%}$	117 (± 5)	186 (± 8)
PC / $ppHMDSO_{50\%}$	95(± 30)	246 (± 10)
PC / $Co\text{-}deposit_{50\%}$	145 (± 50)	249 (± 5)

Table S3. Cone calorimeter results associated to Figure 11.

	TTI (s)	pHRR (kW/m²)
PA-6	50 (± 18)	498 (± 46)
PA-6 / $Co\text{-}deposit_{5\%}$	N/A	N/A
PA-6 / $Co\text{-}deposit_{50\%}$	370 (± 120)	94 (± 68)