

Figure S1. UV–VIS spectra of hybrid pigment (AlMg–LH/AD 10%) exposed to different temperatures.



Figure S2. TOF-SIMS spectra of the $C_{18}H_{10}O_5N_2Mg_{2^{2+}}$ ion from the AlMg–LH/AD 10% sample before and after heating at 300 °C.



Figure S3. Digital photographs of ethylene–norbornene (E–N) composites: E–N, E–N/AlMg–LH/AD 10% and AlMg–LH/AD 20% before and after 500 h of UV aging.



2.5 13.5 13.0 12.5 12.0 11.5 10.5 10.0 9.5 9.0 8.5 8.0 7.5 Chemical shift [ppm] 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0

Figure S4. ¹H NMR spectrum of AD dye.



Figure S5. Absorption spectra of AD dye in chloroform (c = 1×10⁻⁴ M) (**a**), and FT-IR spectra of AD dye (**b**).

Table S1. Color parameters of AD dye and hybrid pigment AlMg–LH/AD 20% during temperature treatment.

Sample	L*1	a*2	b*3
AD	38.18	18.92	14.75
AD (150 °C)	38.02	21.06	15.12
AD (200 °C)	33.04	2.70	0.11
AD (250 °C)	33.25	1.48	-0.11
AlMg-LH	43.66	7.18	30.59
AlMg-LH/AD (150 ℃)	42.31	8.02	30.14
AlMg-LH/AD (200 ℃)	41.02	8.41	28.23
AlMg−LH/AD (250 ℃)	40.30	11.47	26.70

 1 L*–lightness, $^{2}a^{*}$ –negative values for green and positive values for red, $^{3}b^{*}$ –negative values for blue and positive values for yellow.

 Table S2. Elemental composition of the hybrid pigments.

Hybrid Pigment	%C*	%H*	%N*	%N**
AlMg-LH	1.64; 1.54	3.19; 3.20	-	
AlMg-LH/AD 10%	7.18; 7.32	3.17; 3.20	0.84; 0.79	0.84
AlMg-LH/AD 20%	12.39; 12.23	3.29; 3.32	1.58; 1.59	1.67

*received, **expected.