Supplementary Information for

Transforming polyethylene and polypropylene into nontraditional fluorescent polymers by thermal oxidation

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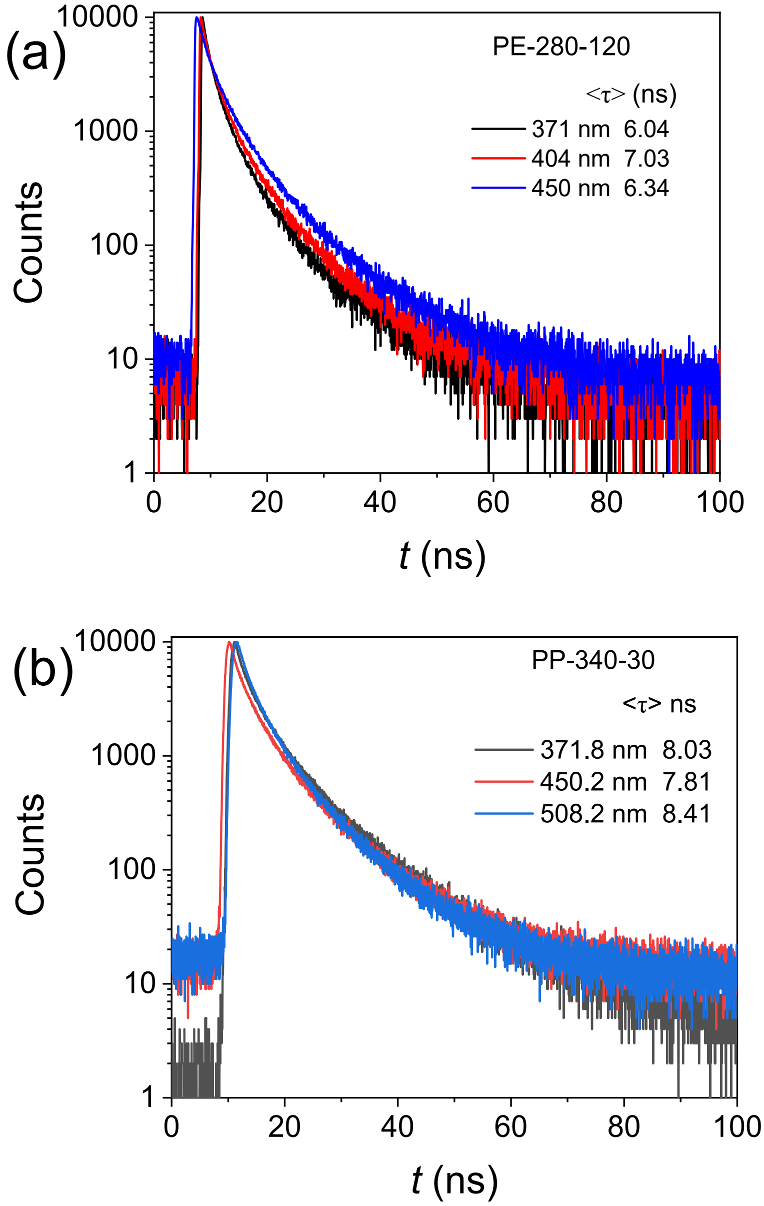

Fig. S1 The fluorescence lifetimes of PE-280-120 and PP-340-30 under different excitation wavelengths.

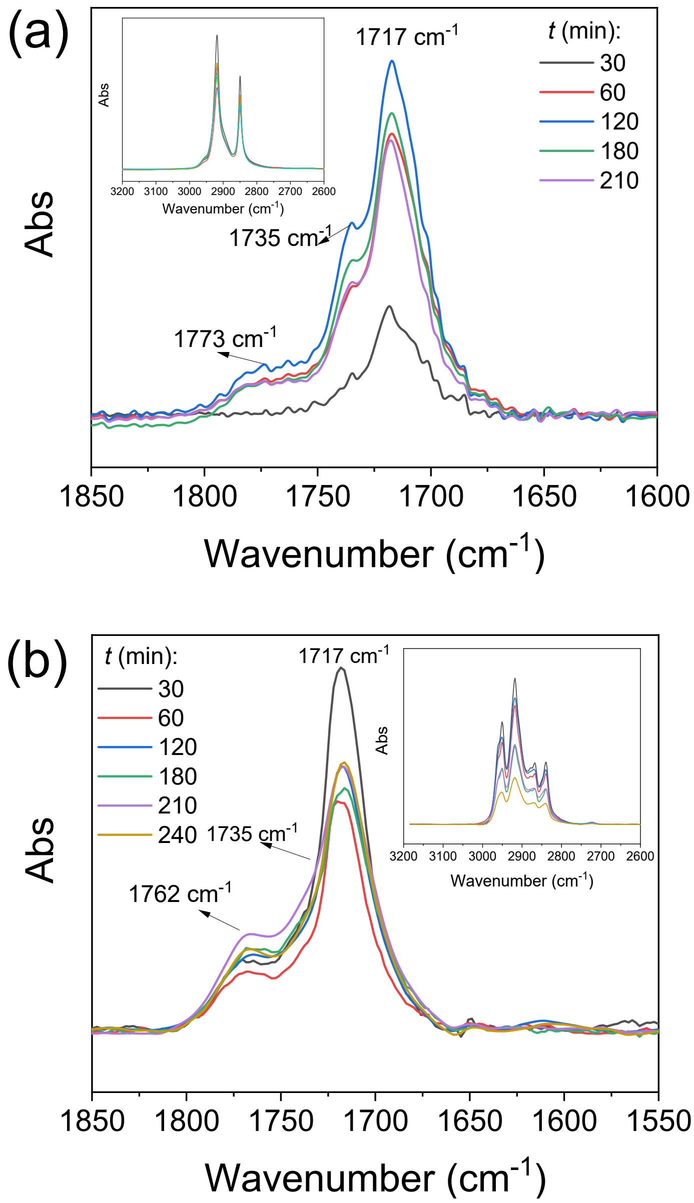

Fig. S2 The FTIR spectra of the carbonyl group regions of the PE (a) and PP (b) samples heated in air at 280°C for different times, respectively. The insets in (a) and (b) are the FTIR spectra of C-H stretching of PE and PP, respectively.

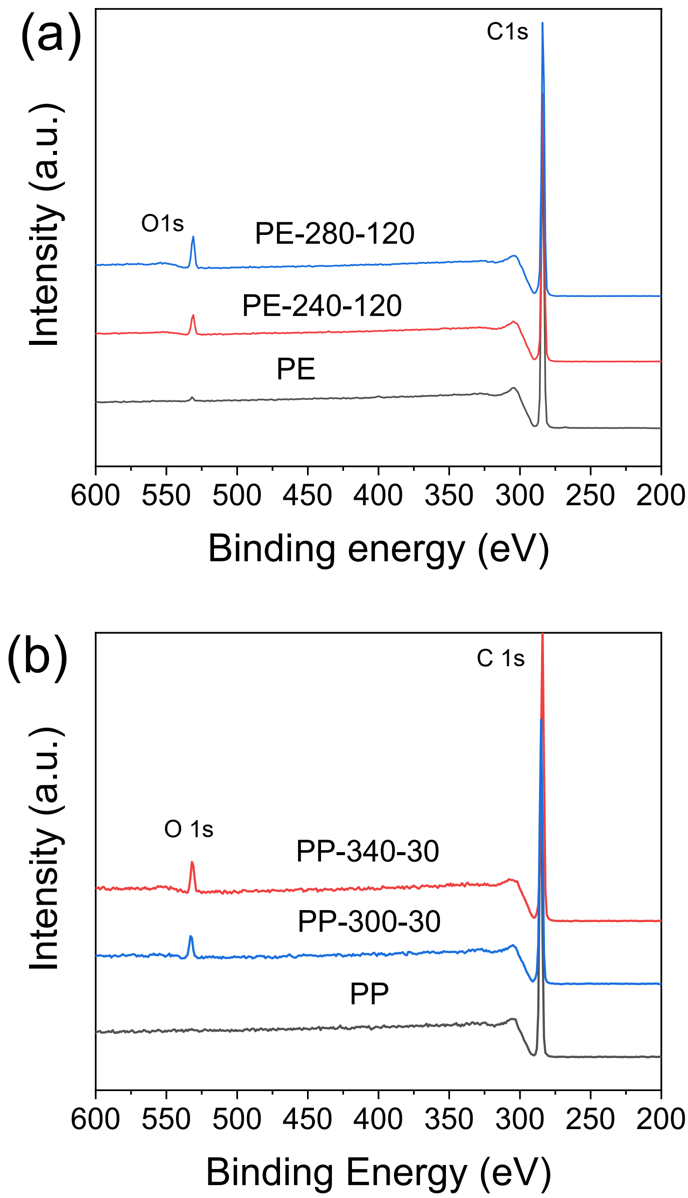

Fig. S3 XPS profiles of PE (a), PP (b) and their oxidized products heated in air at different temperatures for different times.

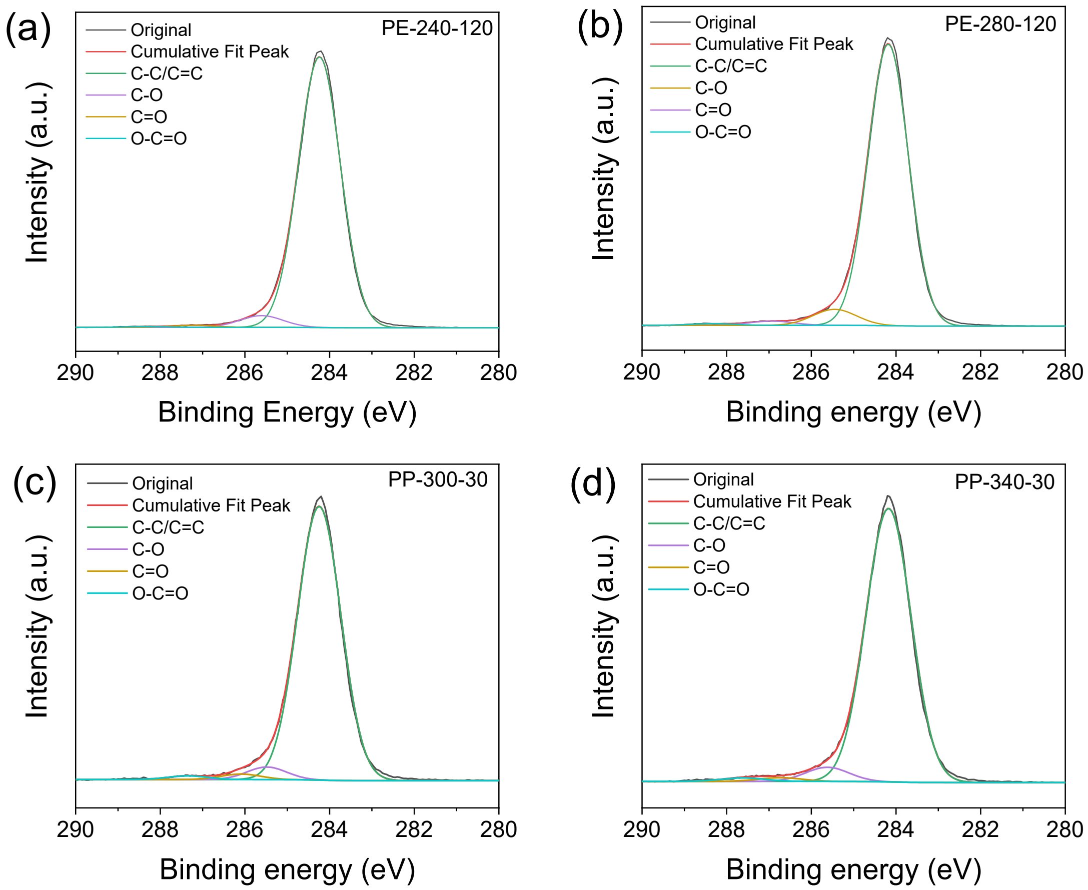

Fig. S4 Curve-fitted XPS profiles of PE and PP and their oxidized products heated in air at different temperature for different time.

Table S1 The quantum yields (ϕ) of the oxidized PE and PP products.

Sample	ϕ (%)
PE-280-30	4.9
PE-280-120	5.2
PE-280-240	2.7
PE-240-120	2.8
PE-320-120	2.4
PP-280-30	3.0
PP-300-30	2.6
PP-340-30	6.3
PP-360-30	3.6
PP-280-60	4.3
PP-280-120	4.1
PP-280-180	6.0
PP-280-210	2.5
PP-280-240	1.6