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SUPPLEMENTARY INFORMATION

Inactivation of TiO_2 nano-powders for the preparation of photo-stable sunscreens via carbon-based surface modification.

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Summary

1. Aspect of the pristine and the carbon modified samples
2. Simulation of the PBN /$O_2^{\bullet-}$ adduct recorded after removal of oxygen.
3. Effect of the modification with ethylene glycol on the surface reactivity of anatase
4. Effect of the O_2 pressure during the heating process on the reactivity of TiO_2 modified with ethylene glycol

1. Aspect of the pristine and the carbon modified samples

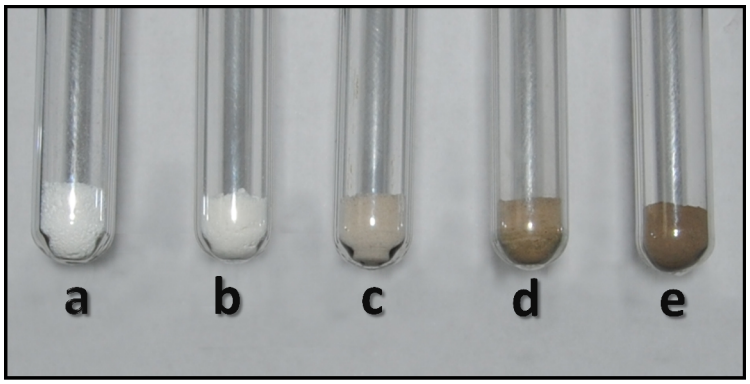

Figure S1. a) $T_{A/R}$; b) $T_{A/R}$-E; c) $T_{A/R}$-EG; d) $T_{A/R}$-GA; e) $T_{A/R}$-CA.

2. Simulation of the PBN /$O_2^{\bullet-}$ adduct recorded after removal of oxygen.

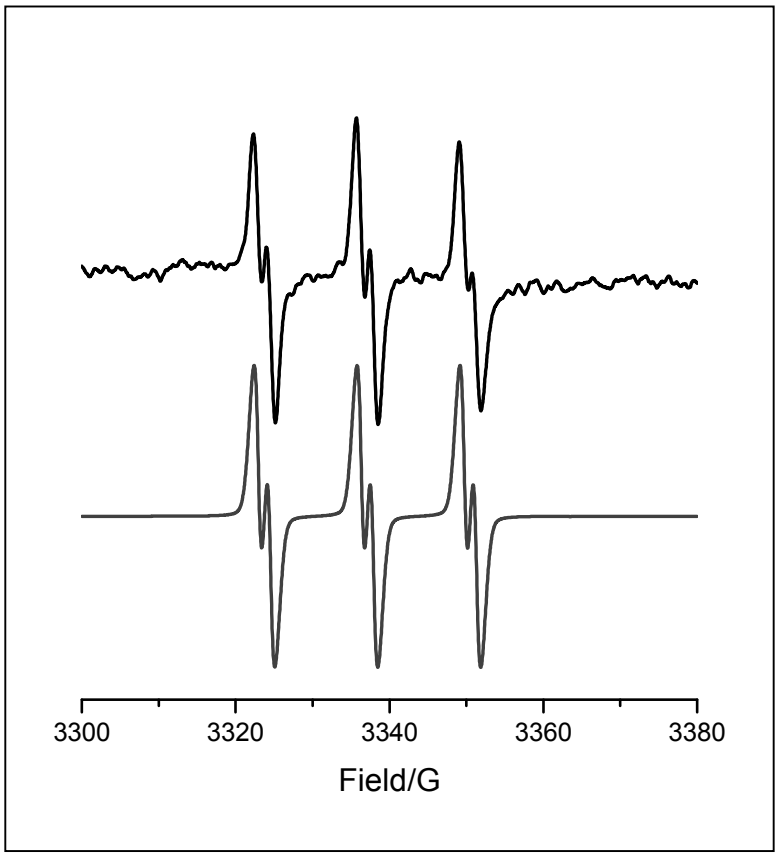

Figure S2. EPR spectra recorded on 28 mg of pristine TiO_2 suspended in a solution 20mM PBN in cyclohexane after 60 minutes of stirring in aerobic conditions. Dissolved oxygen was removed previous EPR measurement. Black line: experimental, gray line: simulation. Calculated hyperfine constants: a^N =13.4 G , a^H =1.6 G.

3. Effect of the modification with ethylene glycol on the surface reactivity of anatase

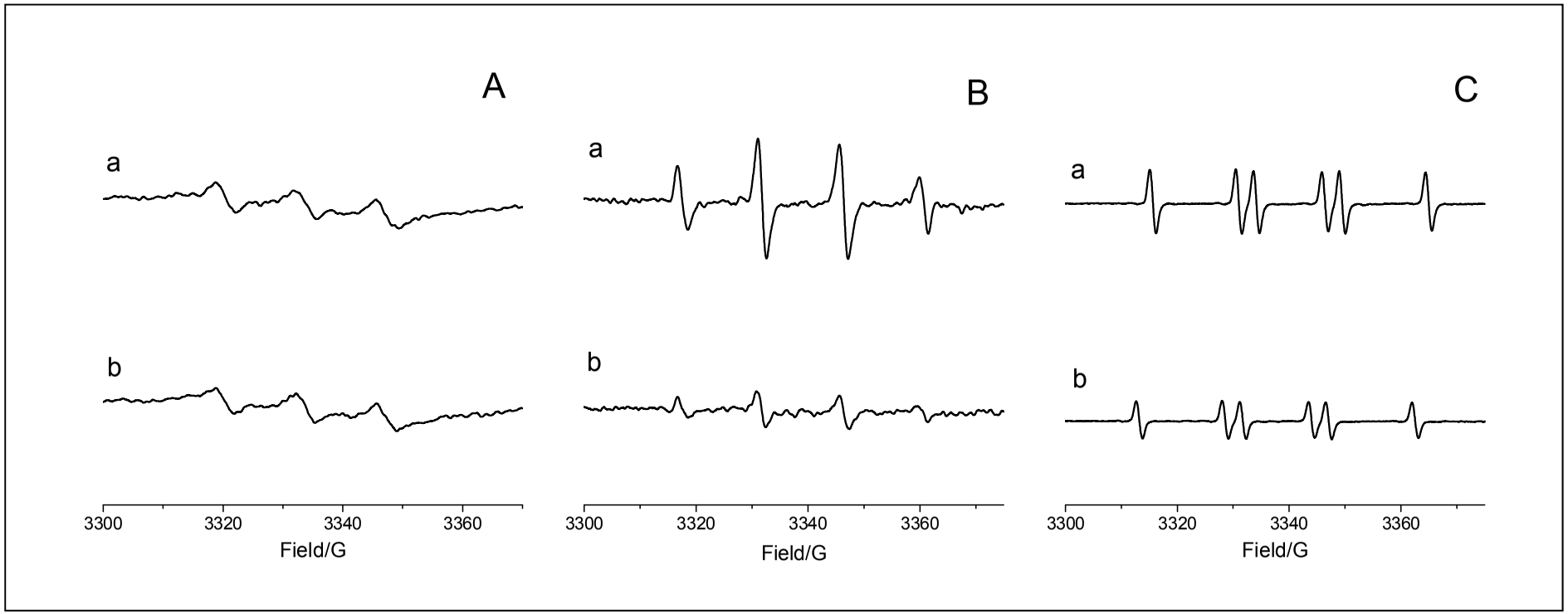

Figure S3. A) superoxide radicals; B) hydroxyl radicals; C) carboxylate radicals. a) T_A ; b) T_A-EG ;

4. Effect of the O_2 pressure during the heating process on the reactivity of TiO_2 modified with ethylene glycol

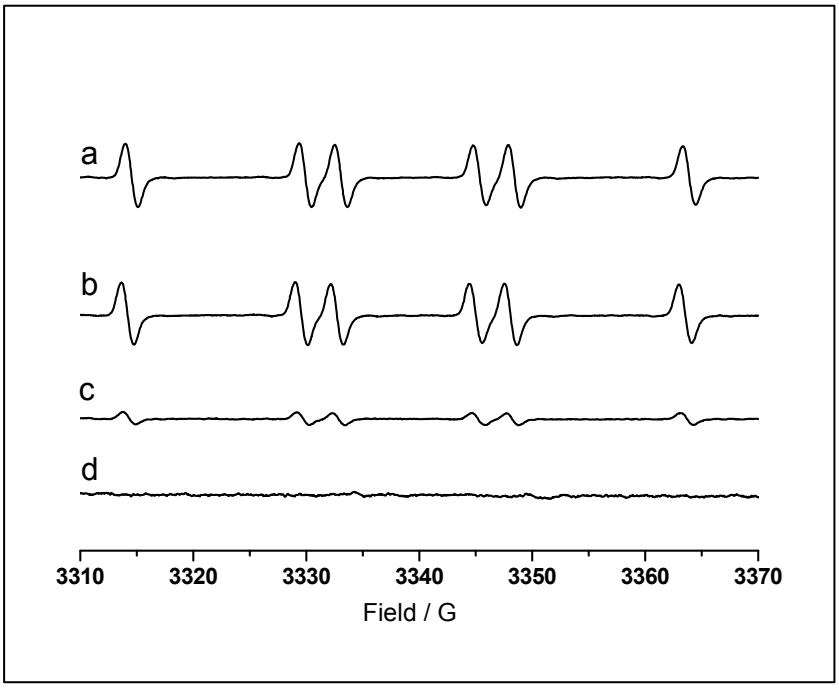

Figure S4. a) $T_{A/R}$, b) $T_{A/R}$ EG heated at 300 °C in air, c) $T_{A/R}$ EG heated under O_2 (partial pressure: 30 mbar), $T_{A/R}$ EG heated under O_2 (partial pressure: 20 mbar),