Electronic Supplementary Information

Quantitative XRD characterisation and gas-phase photocatalytic activity testing for visible-light (indoor applications) of KRONOClean 7000®

DM Tobaldi,[a*] MP Seabra,[a] G Otero-Irurueta,[b] YR de Miguel,[c] RJ Ball,[d] MK Singh,[b] RC Pullar,[a] JA Labrincha[a]

[a] Department of Materials and Ceramic Engineering / CICECO−Aveiro Institute of Materials, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal.

[b] Center for Mechanical Technology and Automation – TEMA, Deparment of Mechanical Engineering, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal.

[c] TECNALIA, Parque Tecnológico de Bizkaia, C/Geldo, Edificio 700, E-48160 Derio-Bizkaia, Spain.

[d] BRE Centre for Innovative Construction Materials, Department of Architecture and Civil Engineering, University of Bath, Claverton Down, BA2 7AY, Bath, UK.

[*] Corresponding author. Tel.: +351 234 370 041

E-mail addresses: david.tobaldi@ua.pt; david@davidtobaldi.org

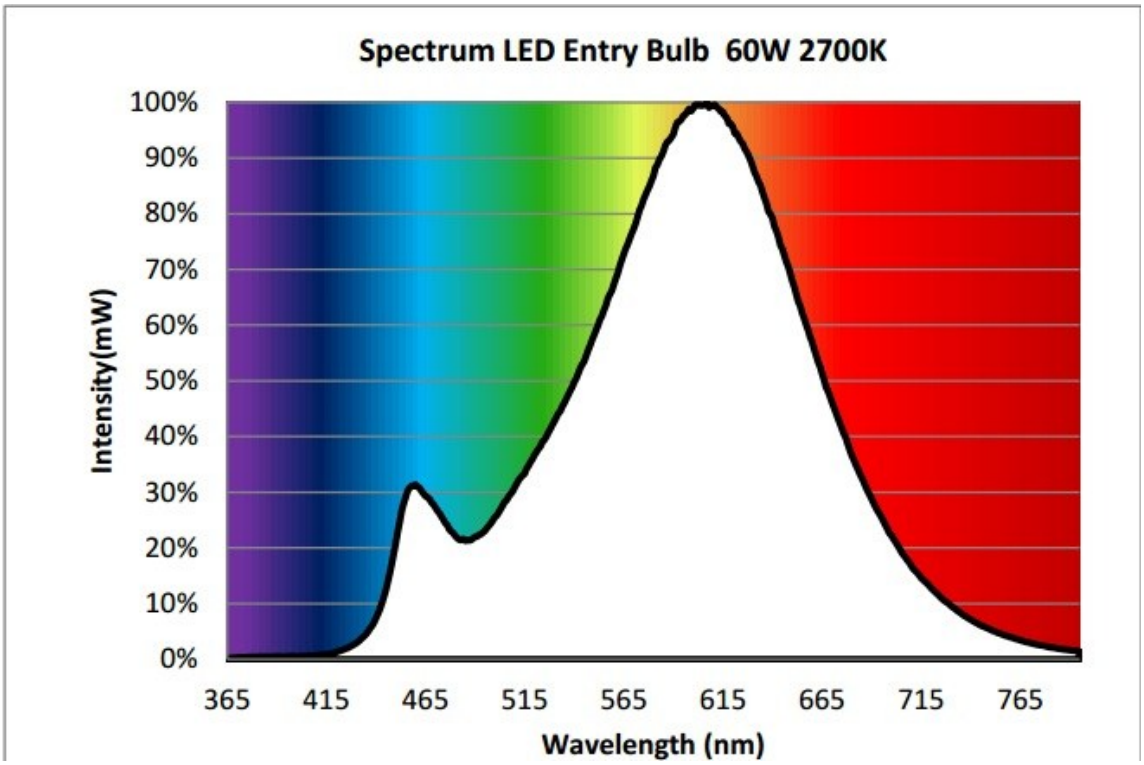

Fig. S1 – Emission spectrum of the Philips LED Bulb Warm white lamp used in the NO_x abatement photocatalytic tests.

Source: www.philips.com.

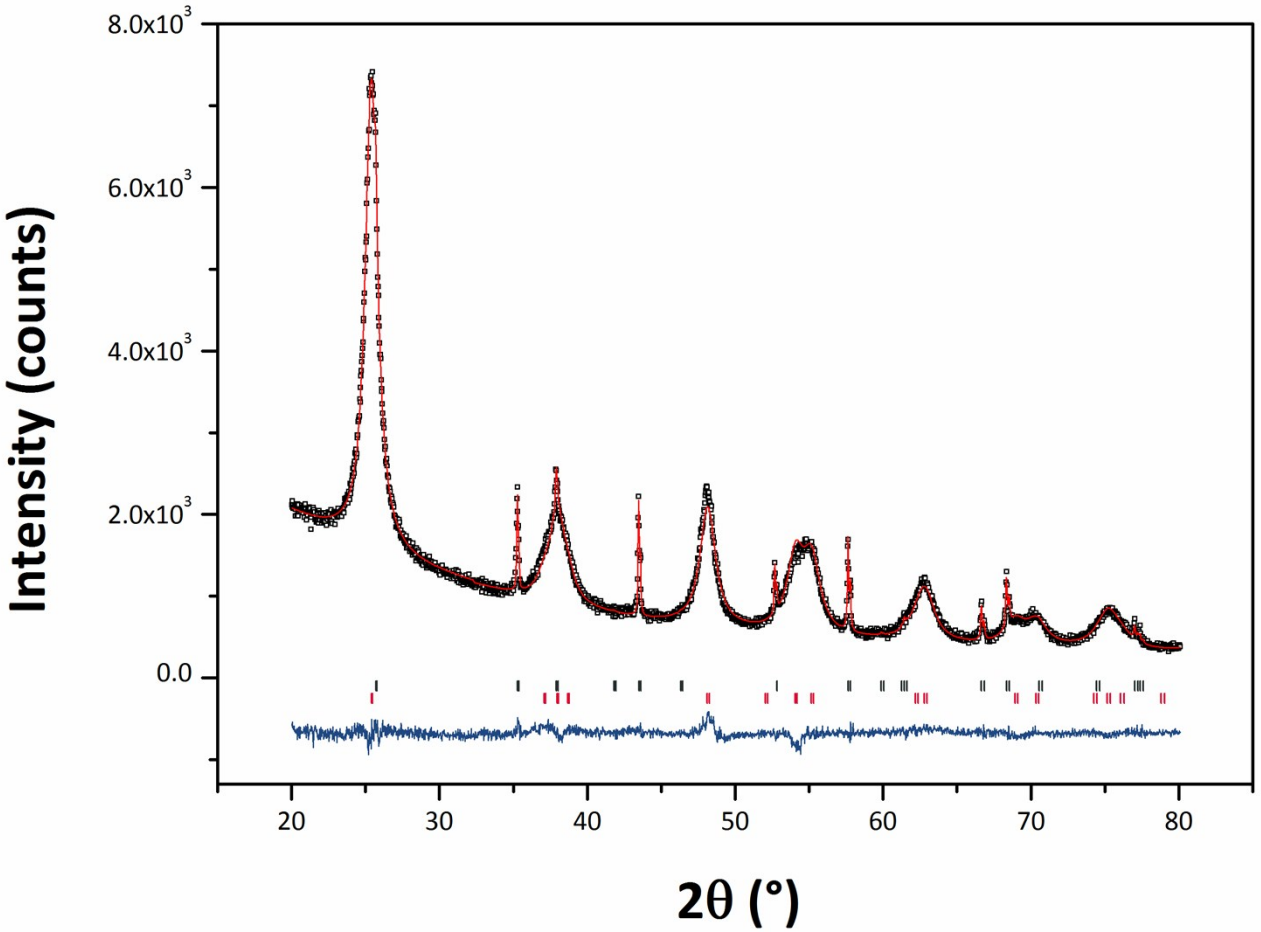

Fig. S2 – Graphic output of the Rietveld refinement of **K7000** (batch 2, *cf* Table 1). The red line represents the calculated pattern, the black open squares the observed pattern, and the difference curve between observed and calculated profiles is plotted below. The position of reflections is indicated by the small vertical bars (red: anatase; black: corundum, the NIST SRM 676a internal standard).

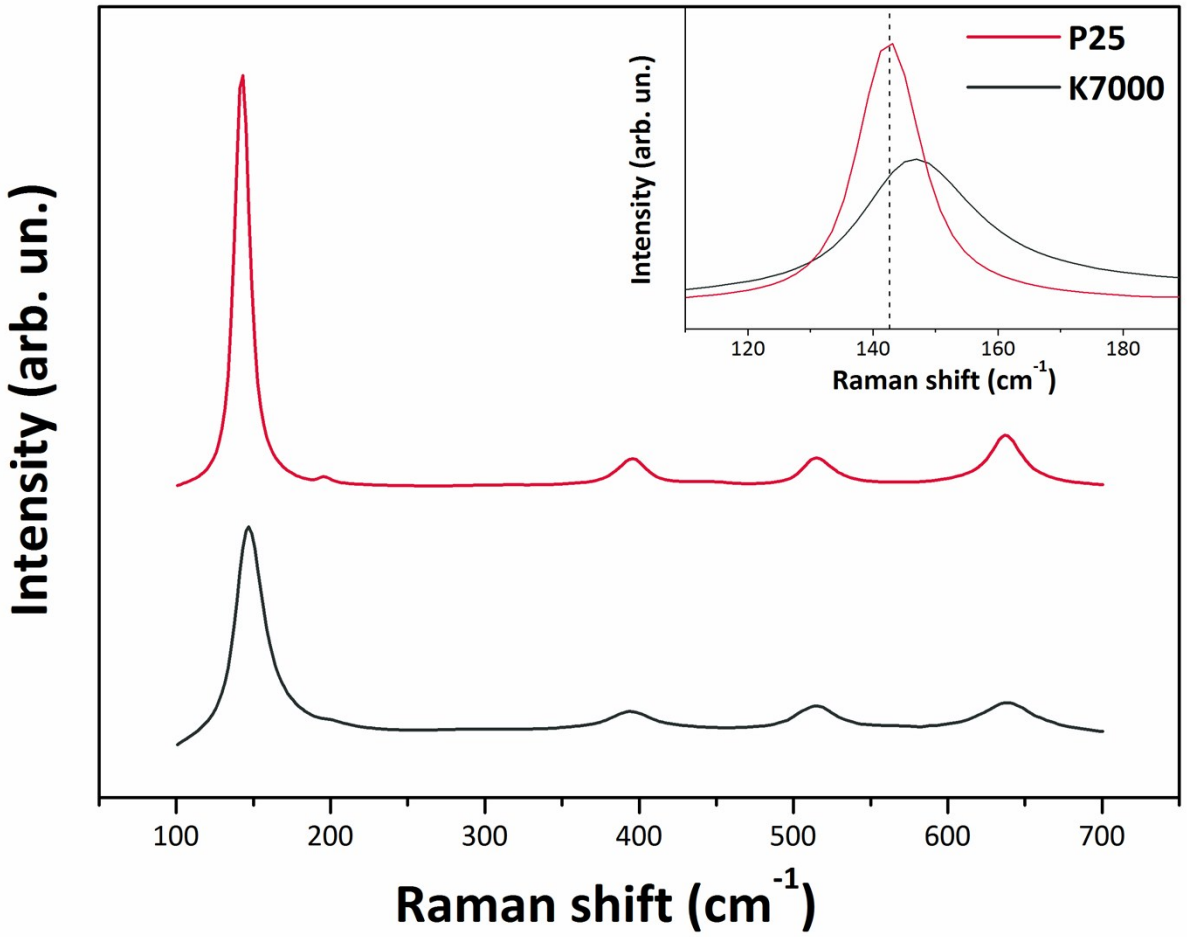

Fig. S3 – Raman spectra of **K7000**, and **P25**. In the inset is shown a magnification between 110–190 cm^{-1}, to highlight the peak broadening and red shift of the Raman E_g active mode of anatase in **K7000**, compared to that in **P25**.

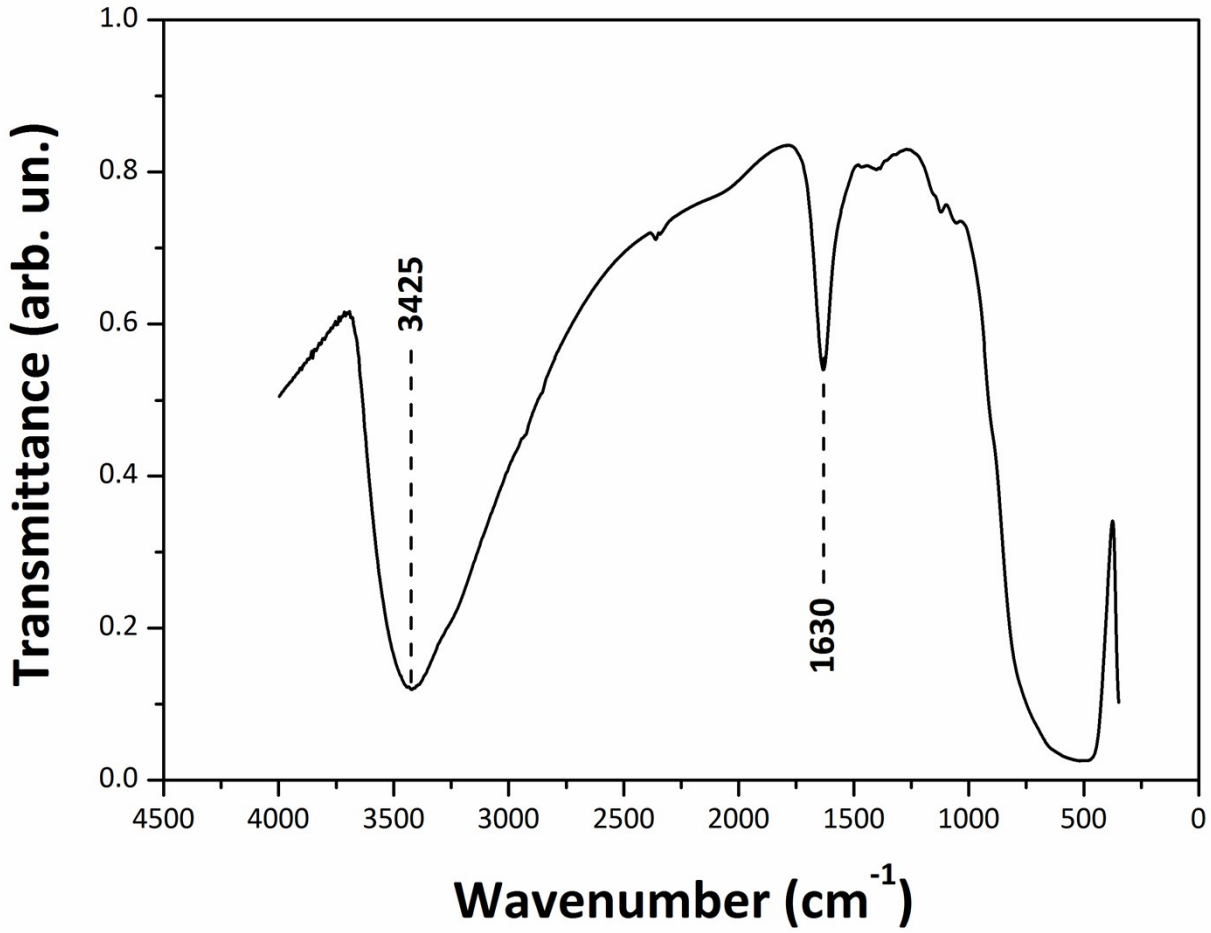

Fig. S4 – FT-IR spectrum of **K7000**; in the inset is reported a magnification of the dashed region, to show the asymmetric (ν_{as}) and symmetric (ν_{s}) stretching frequencies, tentatively attributed here to aryl groups.

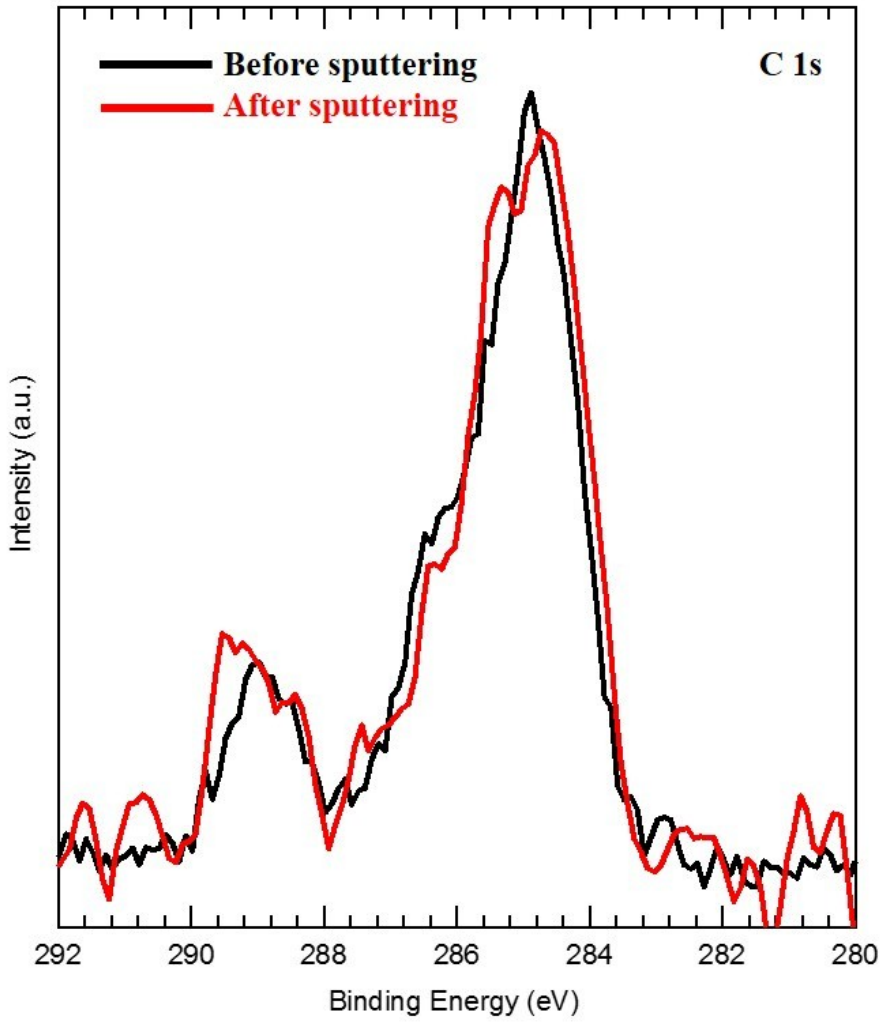

Fig. S5 − Normalised C 1s core level obtained by XPS before (black) and after (red) the ion etching.

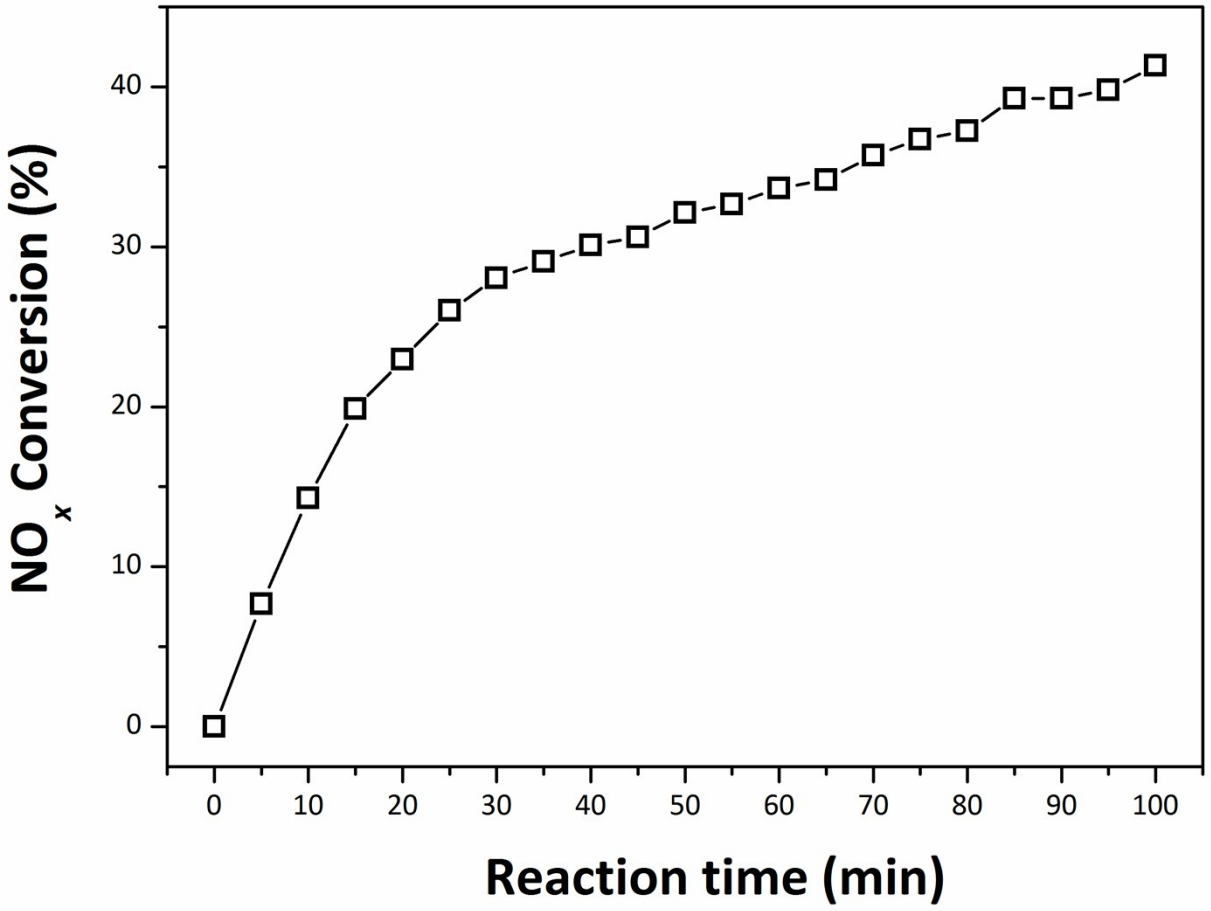

Fig. S6 – Photocatalytic NO_x abatement of **K7000** (batch 1), up to 100 min visible-light irradiation time.