SUPPLEMENTARY INFORMATION FOR

Low temperature curable titanium-based sols for visible light photocatalytic coatings for glass and polymeric substrates

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Table S1. Data on photocatalysts in the photodegradation of methylene blue (MB).

Photocatalyst	Catalyst quantity	Light source	Reaction media	Rto (%) / Rate constant (min^{-1})	Ref.
P25 (TiO_2)	20 mg	Xenon lamp (300W)	100 mL MB 10 mg/L 120 min	≈40%	1
TiO_2 (NaOH 10M)	5 mg			>20%	
	15 mg			≈50%	
	20 mg			≈90%	
	30 mg			<90%	
	50 mg			<90%	
$MnTiO_3$-TiO_2	5 mg	UV lamp (10W & 100W)	50 mL MB 10^{-5} M 250 min pH 2-9	>80% 0.0059 min^{-1}	2
$MnTiO_3$				>80% 0.0052 min^{-1}	
Fe_3O_4/AC/TiO_2	100 mg	UV lamp (1000W)	100 mL MB 100 mg/L 60 min pH 10 pH 12 pH 13	≈91% ≈98% ≈84%	3
BCTi (TiO_2)	0.5 wt%	UVA & visible light (8W x 4)	20 mL MB 10 ppm 180 min	0.1194 h^{-1} 0.0019 min^{-1}	4
ZnO	1 g/L	Mercury light (150W)	100 mL MB 10-30 mg/L 180 min pH 1-10	0.0108 min^{-1}	5
2%Fe-ZnO				0.0106 min^{-1}	
dye-TiO2	Unknown	Halogen lamp (150W)	200 mL MB 120 min	40%	6
Cu-TiSi	Layered Unknown number of substrates 20x20x4mm	Visible light Bulbs (5700K, 2mW/cm^2, 400-750nm)	20 mL MB 10^{-5} M 13 h pH 6.5	≈90% 0.16h^{-1} 0.0026min^{-1}	7
St-TiSi				≈99% 0.22h^{-1} 0.0036min^{-1}	
TiO2-NTU-9	1 g/L	Phillips Hg lamp (1000W/m^2, 450-600nm)	20 mL MB 10-40 mg/L 250 min pH 2-10	100%	8
N-TiO_2-SiO_2	Layered Unknown number of substrates 76.2x25.4x1.1mm	Visible light (Philips, T5-6WA, max. peak 610nm)	15 mL MB 15ppm 500 min	84.3%	9
ZnO	Layered Unknown number of substrates 10x60x1.5mm	Visible light (200W tungsten lamp)	200 mL MB 5 mg/L 250 min	23.41% 0.001 min^{-1}	10
N-ZnO				36.62% 0.0017 min^{-1}	
N-ZnO/CNT				63.69% 0.0040 min^{-1}	
N-TiO_2@NH_2-MIL-88	20 mg	Xe lamp (300W, 420-760nm)	100 mL MB 50 mg/L 80 min	0.0305min^{-1}	11
NH_2-MIL-88				0.0133min^{-1}	
N-TiO_2				0.0012min^{-1}	
TiO_2				0.0005min^{-1}	
Membrane NH_2-MIL-125	Membrane 8x8cm	LED (6W, >420nm)	100 mL MB 10 ppm 300 min	49.26% 0.0023 min^{-1}	12
Porous TiO2	Layered 4 substrates 25x75x1mm	UV fluorescence lamp (365 nm, 6W, 800uW/cm^2)	80 mL 16.5 µM MB 120 min pH 2	42,78% 0.284h^{-1} 0.0047min^{-1}	13
Dense TiO2				36.17% 0.222h^{-1} 0.0037min^{-1}	
Porous TiO_2	Layered 4 substrates 25x75x1mm	UV fluorescence lamp (365 nm, 6W, 800uW/cm^2)	80 mL MB 16.5 µM 120 min pH 2	42,78% 0.284h^{-1} 0.0047min^{-1}	14
TiO_2/NH_2BDC	Layered 2 substrates 25x75x1mm	LED lamp (6W, 405nm)	80 mL MB 16.5 µM 120 min pH 2-9	>60% 0.226 h^{-1} 0.0037 min^{-1}	This work

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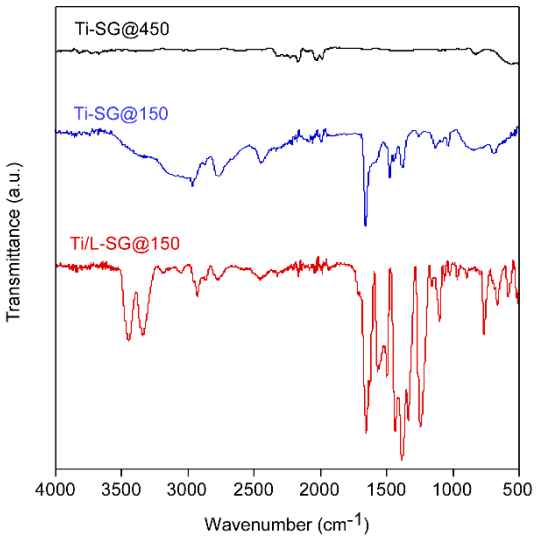


Fig. S1 Infrared spectra of xerogel samples

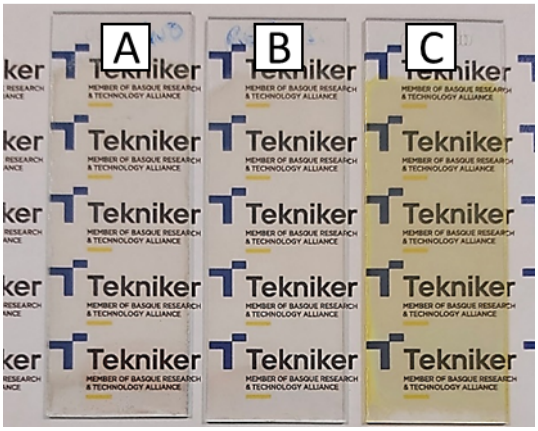


Fig. S2 Coatings appearance of coated glass supports: (A) Ti-SG@450, (B) Ti-SG@150 and (C) Ti/L-SG@150.

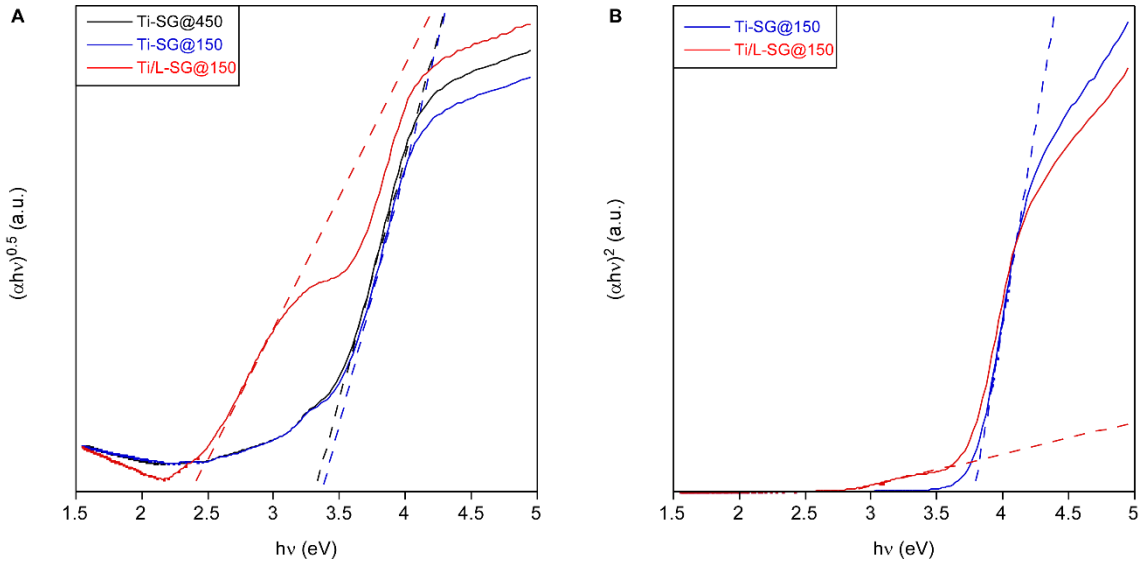


Fig. S3 Tauc plots of coatings cured at 150 and 450 °C. Dashed lines depict the linear fitting of (A) $(\alpha h\nu)^{0.5}$ for the indirect band gap and (B) $(\alpha h\nu)^2$ for the direct band gap.

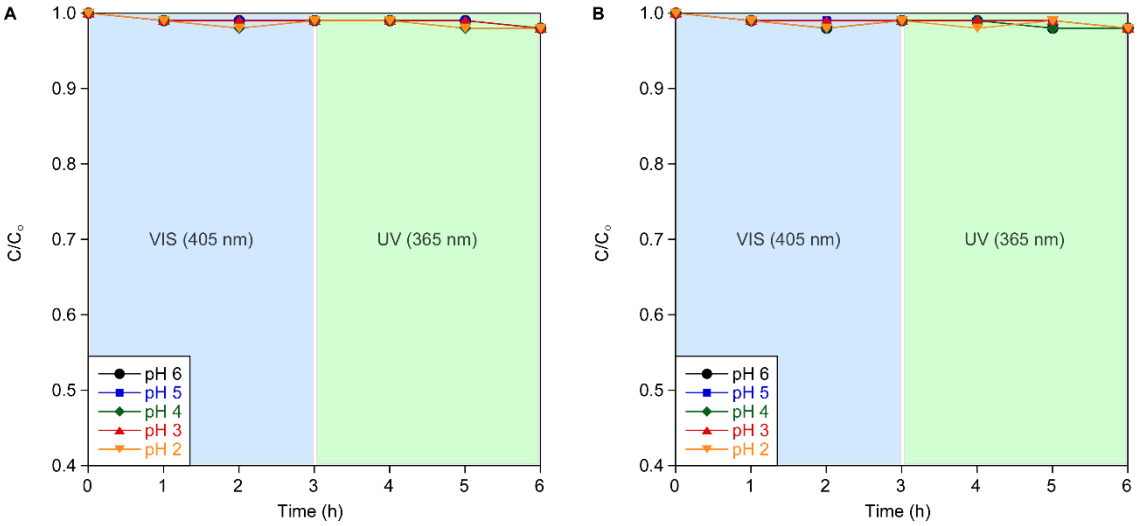
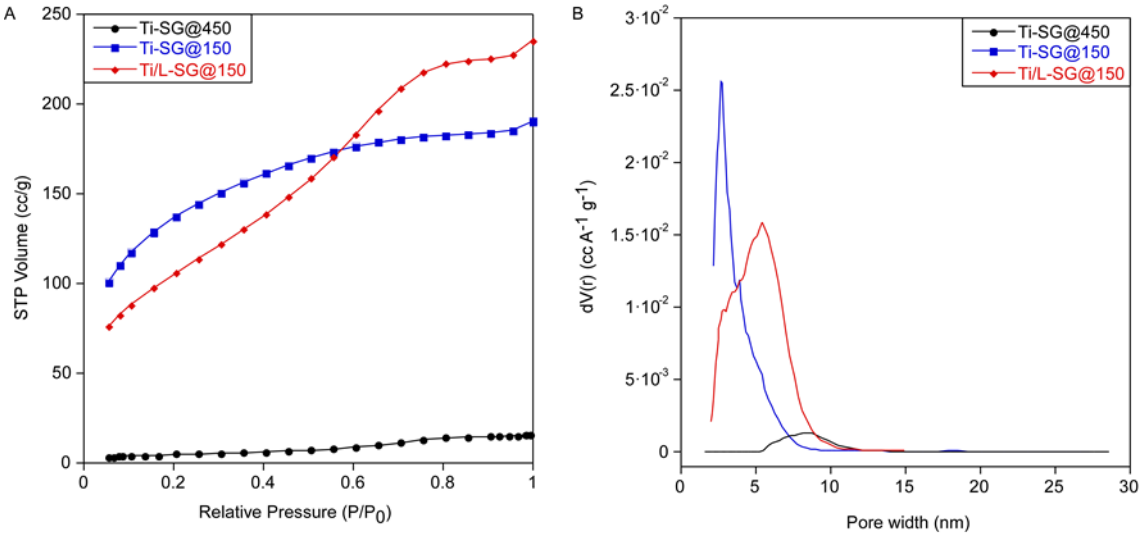


Fig. S4 Evolution of the relative dye concentration under visible and UV light (A) in absence of substrate and photocatalyst and (B) in presence of the substrate without photocatalyst.



	Surface Area (m^2/g)	Micropore area (m^2/g)	Mesopore area (m^2/g)
Ti-SG@450	14.35	0	14.35
Ti-SG@150	469.37	246.75	222.61
Ti/L-SG@150	380.37	0	380.37

Fig. S5 (A) N_2 adsorption isotherms and (B) pore size distributions of xerogel samples. Total surface area values and subtracted micropore and mesopore contributions are shown in the table below. These values were subtracted from the t-plot method. Pore size distribution were achieve using DFT methods as detailed in the experimental section.

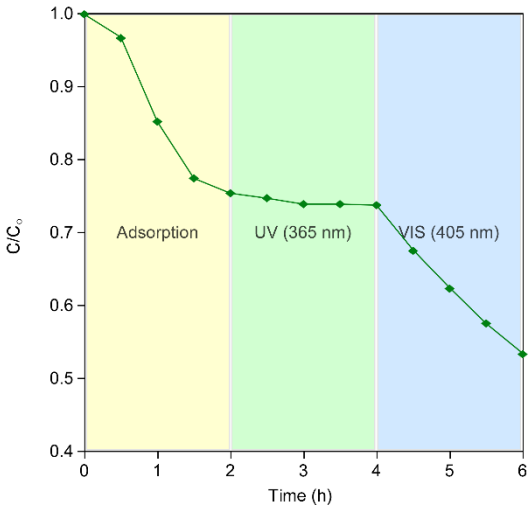


Fig. S6 Evolution of the relative dye concentration using UV light illumination prior to visible irradiation for Ti/L-SG@150.

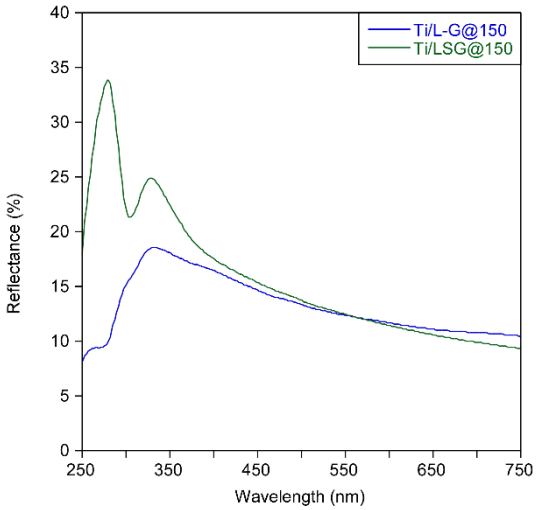


Fig. S7 Comparison of reflectance spectra of Ti/L-SG@150 and Ti/L-G@150.