*Supporting Information*

# $TiO_2/(BiO)_2CO_3$ Nanocomposites for Ultraviolet Filtration with Reduced Photocatalytic Activity

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## Supporting Figures

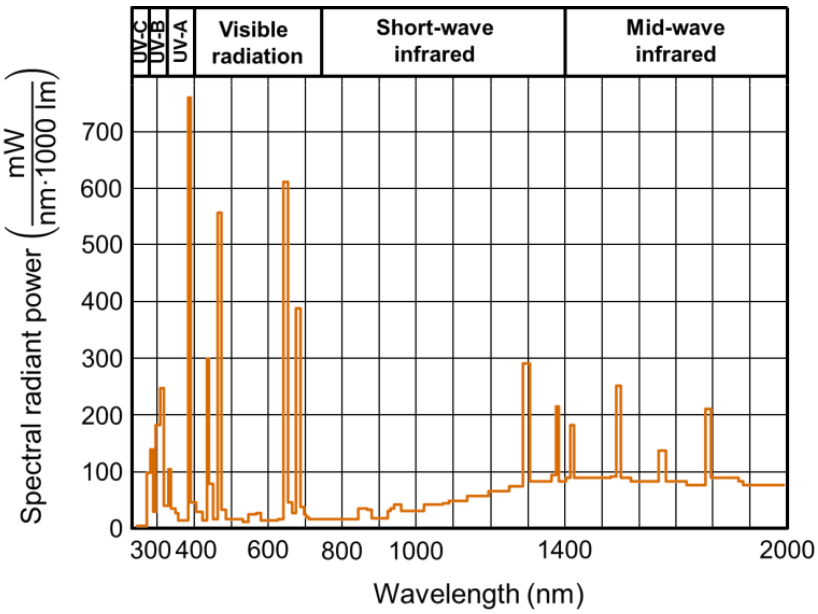


**Figure S1.** Adapted light emission profile of the OSRAM Ultra-Vitalux® 300 W Sunlamp.[1]

## Reference

(1) Deka, M.; Humar, M.; Rep, G.; Kričej, B.; Šentjurc, M.; Petrič, M. Effects of UV Light Irradiation on Colour Stability of Thermally Modified, Copper Ethanolamine Treated and Non-Modified Wood: EPR and DRIFT Spectroscopic Studies. *Wood Sci. Technol.* **2008**, *42*, 5 – 20.

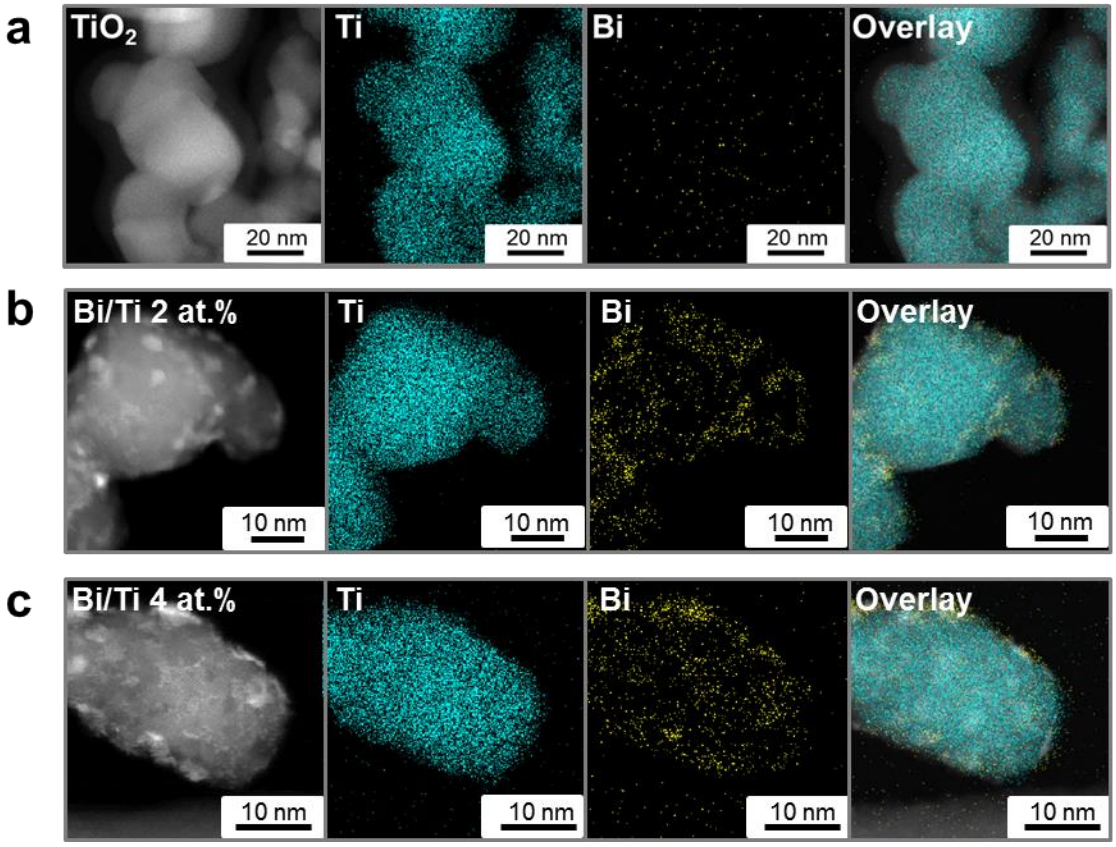


**Figure S2.** TEM images with high resolution EDS mapping of a) $TiO_2$ NPs, b) $TiO_2/(BiO)_2CO_3$ sample Bi/Ti 2 at.%, and c) $TiO_2/(BiO)_2CO_3$ sample Bi/Ti 4 at.%.

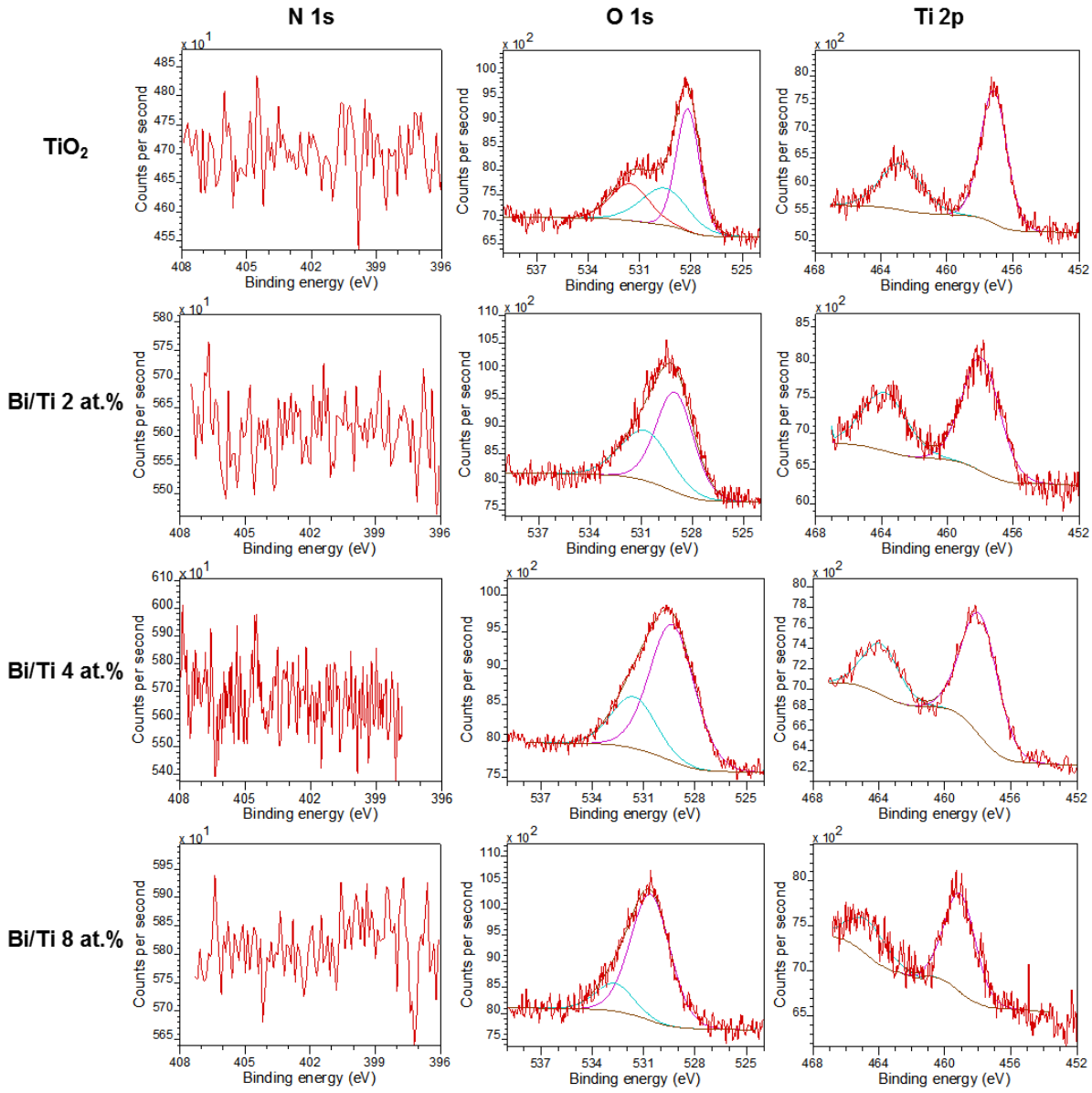


**Figure S3.** High resolution XPS spectra of the N 1s (left column), O 1s (centre column), and Ti 2p (right column) regions for the commercial $TiO_2$ NPs, and $TiO_2/(BiO)_2CO_3$ nanocomposites with different Bi/Ti atomic ratios.

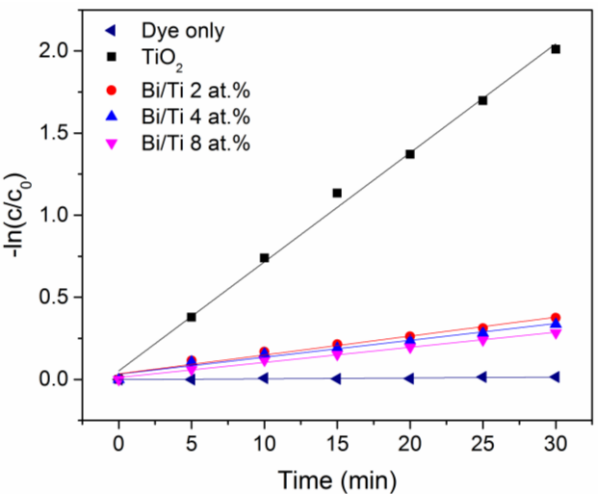


**Figure S4.** Apparent rate constant curves for the UV-visible dye degradation of crystal violet, as shown in Figure 5a. The concentration of all nanomaterials is 5 mg/L.

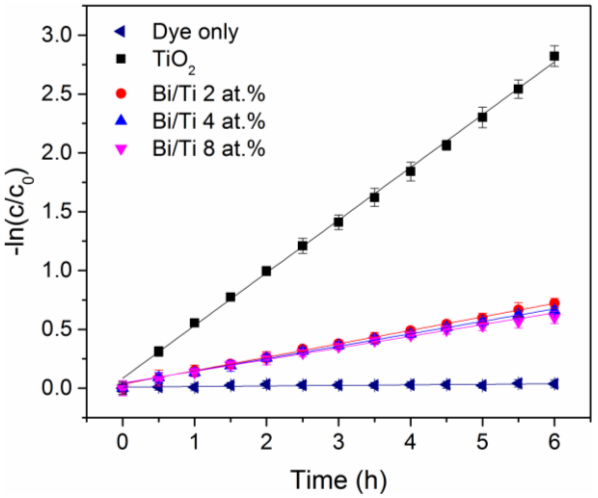


**Figure S5.** Apparent rate constant curves for the dye degradation of crystal violet under exposure to AM 1.5 G one sun (100 mW/cm$^2$), as shown in Figure 5b. The concentration of all nanomaterials is 5 mg/L.

**Supporting Table**

**Table S1.** High Resolution XPS Data[a]

| Sample | Bi $4f_{5/2}$ (eV) | Bi $4f_{7/2}$ (eV) | Ti $2p_{1/2}$ (eV) | Ti $2p_{3/2}$ (eV) | C 1s $_{C-O}$ (eV) |
|---|---|---|---|---|---|
| $TiO_2$ | - | - | 462.83 ± 0.24 | 457.23 ± 0.32 | 286.92 ± 0.28 |
| Bi/Ti 2 at.% | 164.68 ± 0.45 | 159.31 ± 0.28 | 464.41 ± 0.41 | 458.54 ± 0.44 | 287.57 ± 0.24 |
| Bi/Ti 4 at.% | 164.85 ± 0.40 | 159.34 ± 0.21 | 464.56 ± 0.39 | 458.56 ± 0.36 | 287.56 ± 0.24 |
| Bi/Ti 8 at.% | 165.85 ± 0.39 | 160.51 ± 0.43 | 465.26 ± 0.48 | 459.42 ± 0.50 | 287.25 ± 0.23 |

[a]Data is shown for peaks of Bi 4f, Ti 2p, and C 1s for the commercial $TiO_2$ NPs, and the $TiO_2/(BiO)_2CO_3$ nanocomposites with different Bi/Ti atomic ratios. The C 1s peak of adventitious carbon for all samples is found at 284.83 eV.