

# Correction to “Degradation of Methylene Blue Using Porous WO<sub>3</sub>, SiO<sub>2</sub>–WO<sub>3</sub>, and Their Au-Loaded Analogs: Adsorption and Photocatalytic Studies”

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We recently began performing elemental analyses in-house using our own ICP-OES and noticed differences between data generated for related samples and those obtained from the company that had previously been performing our analyses. This caused us to go back and double-check the data in the published manuscript, where we also identified differences. Upon contacting the company, we discovered that they had indeed had trouble working with our materials; on the other hand, our conversations with the company and repeated validation tests have given us confidence in our own methods. Importantly, these changes do not affect the conclusions of our manuscript; the elemental analysis data is part of characterization that was summarized in Table 1.

The following corrections should be made:

1. The text near the end of the second paragraph in the second column of page 1988 should be changed from “Indeed, the Au content of Au–WO<sub>3</sub> was less than Au–SiO<sub>2</sub>–WO<sub>3</sub>” to “Elemental analysis data suggested that WO<sub>3</sub> was removed to a greater extent than Au during HF etching of Au–SiO<sub>2</sub>–WO<sub>3</sub> (ICP-OES, see below).”

2. Text starting near the end of the second paragraph in the first column of page 1990 and continuing into the second column should be changed: “...the effect of WO<sub>3</sub> dissolution, and to some extent, SiO<sub>2</sub> dissolution...” to “the effect of SiO<sub>2</sub> and WO<sub>3</sub> dissolution...”

Also: “An increase in the Si/W mole ratio of Au–SiO<sub>2</sub>–WO<sub>3</sub> in relation to SiO<sub>2</sub>–WO<sub>3</sub> provided evidence of WO<sub>3</sub> dissolution during the sonochemical deposition of Au nanoparticles. As mentioned above, this data also indicated a loss of Au (in the form of <10 nm nanoparticles) during the etching of Au–SiO<sub>2</sub>–WO<sub>3</sub> to form Au–WO<sub>3</sub>” should be changed to “A decrease in the Si/W mole ratio of Au–SiO<sub>2</sub>–WO<sub>3</sub> in relation to SiO<sub>2</sub>–WO<sub>3</sub> provided evidence of greater SiO<sub>2</sub> dissolution

compared to WO<sub>3</sub> during the sonochemical deposition of Au nanoparticles. As mentioned above, this data also indicated a loss of Au (in the form of <10 nm nanoparticles) and WO<sub>3</sub> during the etching of Au–SiO<sub>2</sub>–WO<sub>3</sub> to form Au–WO<sub>3</sub>. Indeed, the decrease in the W/Au mole ratio signified that the loss of WO<sub>3</sub> was greater than that of Au.”

3. Table 1 should be changed (changed values in **bold**).

4. Finally, the description of elemental analysis in the experimental section should be changed from “Elemental analysis by ICP-OES was completed at Robertson Microлит Laboratories (Ledge wood, NJ)” to the following: “Elemental analysis by ICP-OES was completed on a PerkinElmer Optima 7000DV ICP optical emission spectrometer (OES) with a CCD array detector, a PerkinElmer S10 autosampler, and WinLab32 software. Samples were first dried at 100 °C in air for several hours or overnight. Additionally, etched samples were calcined at 500 °C for 3 h in air to remove residual ethanol that was adsorbed during the washing step. Samples were first digested by adding 0.020 g of material to 1 mL of 2 M NaOH in a 1.5 mL Eppendorf tube followed by approximately 25 min of ultrasonication. Mixtures were left to shake vigorously for several hours or overnight to completely dissolve SiO<sub>2</sub> and WO<sub>3</sub> components. Samples containing Au NPs were allowed to settle overnight before subsequent centrifugation (14 800 rpm, 5 min) and separation. The Au pellet was washed with 1 mL of H<sub>2</sub>O then centrifuged. The supernatants were added to the initial digest solution of SiO<sub>2</sub> and/or WO<sub>3</sub>. Three total H<sub>2</sub>O washings were performed, and then the digest solution was adjusted to 0.1 M NaOH with H<sub>2</sub>O. Diluted digest solutions of SiO<sub>2</sub> and WO<sub>3</sub> were prepared with 0.1 M NaOH in 100 mL volumetric flasks. Gold nanoparticles were transferred in water via pipet to a vial and then evaporated to near dryness on a hot plate. The Au NP residue was then digested in aqua regia

**Table 1. Summary of Elemental Analysis, Au Nanoparticle Sizes, and N<sub>2</sub> Physisorption Data for the Porous Au-Loaded and Nonloaded Oxides Discussed in This Work<sup>a</sup>**

sample	W (wt %)	Au (wt %)	Si/W (mole ratio)	W/Au (mole ratio)	Au diameter (nm)	S <sub>A</sub> BET (m <sup>2</sup> g <sup>−1</sup> )	V <sub>pore</sub> (cm <sup>3</sup> g <sup>−1</sup> )	d <sub>pore</sub> (Å)
SiO <sub>2</sub>						463	0.95	78
SiO <sub>2</sub> –WO <sub>3</sub>	54.6		1.68			65	0.12	47
WO <sub>3</sub>	79.9		0.0099			53	0.20	101
Au–SiO <sub>2</sub> –WO <sub>3</sub>	56.8	3.74	1.24	16.3	3–5 <sup>b</sup>	55	0.17	74
Au–WO <sub>3</sub>	73.8	5.95	0.0113	13.3	~10 <sup>b</sup>	66	0.24	135

<sup>a</sup>Weight percent and mole ratios determined by ICP-OES. <sup>b</sup>Measured by TEM and XRD.

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and then heated to evaporate solution to near dryness. To the Au/aqua regia residue, approximately 2 mL of 0.5 M HCl was added, swirled, and then evaporated by heating until residue remained. This washing/evaporation step was repeated a second time before transferring the Au solution to a 25 mL volumetric flask and diluting to mark with 0.5 M HCl. Concentrations of Au, Si, and W were determined by calibration curves.”

We regret the problems with the elemental analysis data but are pleased to be able to provide corrected information.