**Supplementary Information**

**Hydrogen production by photocatalysis using new composites based on SiO2 coated by TiO2**

***Werick Alves Machado,1,2. Antonio Eduardo da Hora Machado1,3***

1Universidade Federal de Uberlândia, Instituto de Química, Laboratório de Fotoquímica e Ciência de Materiais, Uberlândia, Minas Gerais, Brazil

2 Instituto Federal de Educação, Ciência e Tecnologia do Triangulo Mineiro (IFTM), Ituiutaba, Minas Gerais, Brazil

3Universidade Federal de Catalão, Unidade Acadêmica Especial de Física, Catalão, Goiás, Brazil

**Tables**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table T1**- Rietveld refinement reliability factors | | | | | |
| Photocatalyst | Rb | Rf | Rwp | Rexp | S |
| W50 | 1,17 | 0,78 | 11,0 | 9,46 | 1,16 |
| W50S25 | 2,82 | 1,05 | 11,7 | 9,85 | 1,18 |
| W50S50 | 2,13 | 1,13 | 16,8 | 12,8 | 1,31 |
| W50S75 | 4,23 | 1,74 | 19,0 | 13,8 | 1,37 |

**Figures**

|  |
| --- |
| **Figure S1**- a) Images obtained by SEM; b) EDS spectra and c) particle size distribution histograms for the W50 photocatalyst.  **a)**    **c)**  **b)**  **Figure S2**- a) Images obtained by SEM; b) EDS spectra and c) particle size distribution histograms for the W50S25 photocatalyst.  **a)**    **c)**  **b)** |
| **Figure S3**- a) Images obtained by SEM; b) EDS spectra and c) particle size distribution histograms for the W50S50 photocatalyst.  **a)**    **c)**  **b)**  **Figure S4**- a) Images obtained by SEM; b) EDS spectra and c) particle size distribution histograms for the W50S75 photocatalyst.  **a)**    **b)**  **c)**  **Figure S5**- a) Images obtained by SEM; b) EDS spectra and c) histograms of particle size distribution for silica.  **a)**    **c)**  **b)** |

**Figure S6**- Nitrogen adsorption / desorption isotherms obtained for synthesized oxides: a) W50, b) W50S25, c) W50S50, d) W50S75 and e) SiO2.



**Figure S7-** Diffractograms obtained after refinement Rietveld for the following photocatalysts: a) W50, b) W50S25, c) W50S50, d) W50S75.



**Figure S8-** Raman spectrum of pure SiO2.

