

# Effect of TiO<sub>2</sub> on Pd/La<sub>2</sub>O<sub>3</sub>-CeO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> Systems during Catalytic Oxidation of Methane in the Presence of H<sub>2</sub>O and SO<sub>2</sub>

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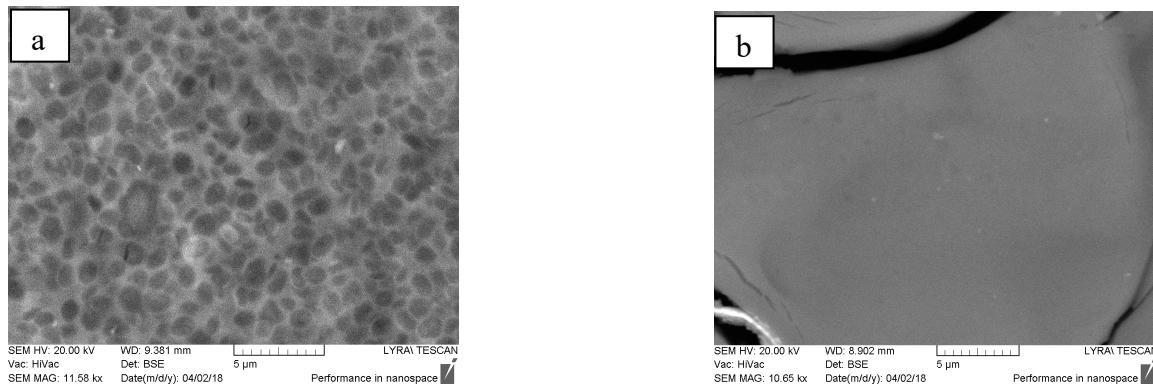
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## Supplementary Data

### 1. SEM/EDX analysis of fresh and used, after sulfur poisoning Pd/La<sub>2</sub>O<sub>3</sub>-CeO<sub>2</sub>-TiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> catalyst.



**Figure S1.** SEM images of a) Pd/La<sub>2</sub>O<sub>3</sub>-CeO<sub>2</sub>-TiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>-fresh and b) Pd/La<sub>2</sub>O<sub>3</sub>-CeO<sub>2</sub>-TiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> used after sulfur poisoning catalysts.

**Table S1.** Surface composition from area of Pd/La<sub>2</sub>O<sub>3</sub>-CeO<sub>2</sub>-TiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> catalysts obtained by SEM/EDX analysis.

Catalyst	O (wt %)	Al (wt %)	Ce (wt %)	La (wt %)	Ti (wt %)	Pd (wt %)	S (wt %)
Pd/La <sub>2</sub> O <sub>3</sub> -CeO <sub>2</sub> -TiO <sub>2</sub> -Al <sub>2</sub> O <sub>3</sub> -fresh	41.3	41.6	8.2	4.5	1.5	2.8	
Pd/La <sub>2</sub> O <sub>3</sub> -CeO <sub>2</sub> -TiO <sub>2</sub> -Al <sub>2</sub> O <sub>3</sub> used after sulfur poisoning	45.6	35.3	6.8	3.9	0.5	5.9	1.9