

Article

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White and Red Brazilian São Simão's Kaolinite–TiO₂ Nanocomposites as Catalysts for Toluene Photodegradation from Aqueous Solutions

Lucas D. Mora ¹, Larissa F. Bonfim ¹, Lorrana V. Barbosa ¹, Tiago H. da Silva ¹, Eduardo J. Nassar ¹, Katia J. Ciuffi ¹, Beatriz González ², Miguel A. Vicente ², Raquel Trujillano ², Vicente Rives ², Maria Elena Pérez-Bernal ², Sophia Korili ³, Antonio Gil ³ and Emerson H. de Faria ^{1,*}

- ¹ Grupo de Pesquisas em Materiais Lamelares Híbridos (GPMatLam), Universidade de Franca (Unifran), Av. Dr. Armando Salles Oliveira, 201 Parque Universitário, Franca-SP, 14404-600 Brazil
- ² GIR-QUESCAT, Dep. de Química Inorgánica, Universidad de Salamanca, E-37008 Salamanca, Spain
- ³ INAMAT, Departamento de Ciencias, Universidad Pública de Navarra, E–31006 Pamplona, Spain
- * Correspondence: emerson.faria@unifran.edu.br; Tel.: +55-16-3711-8969

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Figure S1. Detail plot of the high- and low-wavenumber region of the FTIR spectra of the different solids.





Figure S2. SEM analyses (BSE detector) of Kaol-R (A), Kaol-R-DMSO (B), Kaol-R-TiO₂ (C), Kaol-R-TiO₂-400 (D), Kaol-R-TiO₂-700 (E), Kaol-R-TiO₂-1000 (F). Magnification 30000.







D









G

Figure S3. SEM analysis (BSE detector) of Kaol (A), Kaol-DMSO (B), Kaol-TiO₂(C), Kaol-TiO₂-400 (D), Kaol-TiO₂-700 (E), Kaol-TiO₂-1000 (F) (Magnification 5000X) and Kaol-TiO₂-700 (G) (Magnification 30000X).



Figure S4. EDX spectrum of Kaol-TiO₂.





Figure S5. EDX spectrum of Kaol-TiO₂-400.



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Figure S6. EDX spectrum of Kaol-TiO₂-700.



Figure S7. EDX spectrum of Kaol-R-TiO₂.





Figure S8. EDX spectrum of Kaol-R-TiO₂-400.



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Figure S9. EDX spectrum of Kaol-R-TiO₂-700.



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Figure S10. EDX spectrum of Kaol-R-TiO₂-1000.





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		ba di seconda di second		
Al	Al	Al	Al	Al
	57			
Fe	Fe	Fe	Fe	Fe
0	0	0	0	0
			P2	
Si	Si	Si	Si	Si
Ti	Ti	Ti	Ti	Ti
(Kaol)	(Kaol-TiO2)	(Kaol-TiO2-400)	(Kaol-TiO2-700)	(Kaol-TiO2-1000)
6	E'			

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Figure S11. EDX mapping of Kaol derivatives.

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Figure S12. EDX mapping of Kaol-R derivatives.





Table S1. FTIR assignments (cm⁻¹) of the solids derived from white kaolinite.

Assignment	Kaol	Kaol-DMSO	Kaol-TiO2	Kaol-TiO2-	Kaol-TiO2-	Kaol-TiO2-
				400	700	1000
v (OH)inner	3622	3622	3622	3622	-	-
u (OH)inner surface	3696, 3666, 3660	3662,3700	3662, 3696	3654, 3696	-	-
δ H-O-H	1628	1652	1650	1654	1620	1622
N Si-O	1026, 1110	1026,1102	1026, 1102	1030, 1108	1072	1088
ν Al-OH _{inner}	916	908	906	916	-	-
ν Al-OHinter	-	962	962	-	-	-
SiO2 or quartz	792	786	786	792	814	804
δ Si-O-Al	754	744	744	754	-	-
$\delta Si\text{-}O\text{-}Si {\rm out} {\rm of}$	698	688	688	698	-	-
plane						
Δ Si-O-Aloct	540	554	554	542	-	-
δ Si-O-Si in plane	470	466	466	472	450	474
N Si-O	430	434	434	430	-	-
S=OHO	-	3504, 3540	3506, 3540	3550	-	-
Ω C-H	-	3022, 2936	3022, 2936	-	-	-

Table S2. FTIR assignments (cm⁻¹) of the solids derived from red kaolinite.

Assignment	K al D	Kaol-R-	Kaol-R-	Kaol-R-	Kaol-R-	Kaol-R-
	Ka01-K	DMSO	TiO ₂	TiO2-400	TiO ₂ -700	TiO ₂ -1000
ν (OH)inner	3622	3622	3622	3622	-	-
ν (OH)inner surface	3696, 3658	3662, 3700	3662, 3696	3656, 3694	-	-
δ Н-О-Н	1632	1648	1648	1634	1630	1620
N Si-O	1026, 1108	1034, 1104	1026, 1102	1030, 1110	1088	1074
ν Al-OH _{inner}	916	910	908	916	-	-
v Al-OHinner surface	-	960	962	-	-	-
SiO2 or quartz	792	788	788	792	-	-
δ Si-O-Al	754	746	746	756	-	-
δ Si-O-Si out of plan	696	690	688	698	-	-
Δ Si-O-Al _{oct}	540	554	554	542	-	-
δ Si-O-Si in plane	470	468	466	472	464	464
N Si-O	430	434	434	430	-	-
S=OHO	-	3504, 3540	3506, 3542	3436	-	-
Ω C–H	-	3022, 2936	3022, 2936	-	-	-

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