The effect of composition on optical and photocatalytic properties of visible light response materials $Bi_{26-x}Mg_xO_{40}$

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Supplementary Information

Here, please find SEM images and corresponding X-ray diffraction patterns of typical BiMgO-7.69 and BiMgO-1.00 particles taken after annealing for 24, 48, and 72 hours at 800 °C. The samples' EDX spectra and mapping of chemical elements after annealing for 96 hours at 800 °C are also presented. Finally, Tables S1 and S2 list the samples' chemical composition determined by EDX and ICP-MS techniques.



Figure S1. SEM images and X-ray diffraction patterns of typical BiMgO-7.69 (a and b) and BiMgO-1.00 (c and d) particles after annealing for 24 hours at 800 °C.



Figure S2. SEM images and X-ray diffraction patterns of typical BiMgO-7.69 (a and b) and BiMgO-1.00 (c and d) particles after annealing for 48 hours at 800 ^oC.



Figure S3. SEM images and X-ray diffraction patterns of typical BiMgO-7.69 (a and b) and BiMgO-1.00 (c and d) particles after annealing for 72 hours at 800 °C.



Figure S4. EDX spectrum and mapping of chemical elements of typical BiMgO-7.69 particle after annealing for 96 hours at 800 °C.



Figure S5. EDX spectrum and mapping of chemical elements of typical BiMgO-1.00 particle after annealing for 96 hours at 800 °C.

Table S1. $Bi_{26-x}Mg_xO_{40}$ samples' chemical composition obtained by EDX.

Sample	Element co	The [Mg]/([Mg]+[Bi])	
	Mg	Bi	ratio, %
MgBiO-1.00	0.204±0.102	27.4±1.701	0.74
MgBiO-7.69	0.502±0.120	23.68±2.304	2.07

Table S2. $Bi_{26-x}Mg_xO_{40}$ samples' chemical composition obtained by ICP-MS.

	Element content, µg in 1 g		Element content, at.%		The
Sample	of samples powder				[Mg]/([Mg]+[Bi])
	Mg	Bi	Mg	Bi	ratio, %
MgBiO-1.00	2051,376	1822225	85,474	8718,779	0.97
	±85,474	±8718,779	±56,983	±54,487	0.97
MgBiO-7.69	7021,846	954071,5	292,5769	4564,935	6.02
	±292,577	±4564,935	±41,866	±49,617	0.02