

Bismuth

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Synthesis, Structures and Photocatalytic Activities of Microcrystalline $\text{ABi}_2\text{Nb}_2\text{O}_9$ (A: Sr, Ba) Powders. — Microcrystalline powders of the title compounds are prepared by a citrate complex method starting with an aqueous solution of $\text{NH}_4\text{H}_2[\text{NbO}(\text{C}_2\text{O}_4)_3]$, $\text{M}(\text{NO}_3)_2$ (M: Sr, Ba), and $\text{Bi}(\text{NO}_3)_3$, citric acid, H_2O_2 , and HNO_3 (pH 6.5 adjusted with NH_3 , 65 °C, 1 h). The resulting gel is calcined at 650—850 °C (4 h). Single phase orthorhombic ($\text{A2}_1\text{am}$) $\text{SrBi}_2\text{Nb}_2\text{O}_9$ is obtained after calcination above 650 °C, while $\text{BaBi}_2\text{Nb}_2\text{O}_9$ adopts a tetragonal ($\text{I4}_1/\text{mmm}$) structure. Based on the diffuse reflectance spectra, the band gaps of the obtained samples are calculated to be in the range 3.34—3.54 eV. $\text{SrBi}_2\text{Nb}_2\text{O}_9$ exhibits higher photocatalytic activity for degradation of aqueous methyl orange solutions under UV irradiation than $\text{BaBi}_2\text{Nb}_2\text{O}_9$. — (WU, W.; LIANG, S.; WANG, X.; BI, J.; LIU, P.; WU*, L.; J. Solid State Chem. 184 (2011) 1, 81-88, <http://dx.doi.org/10.1016/j.jssc.2010.10.033> ; State Key Lab. Breed. Base Photocatal., Fuzhou Univ., Fuzhou 350002, Fujian, Peop. Rep. China; Eng.) — W. Pewestorf