

Investigation of the Effects of Simple Heating Processes on the Crystallization of Bi₂WO₆

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Abstract : In this study, the synthesis of photocatalytic Bi₂WO₆ was practiced with simple heating processes and the effects of these treatments on the production of the desired compound were investigated. For this purpose, experiments with Bi(NO₃)₃.5H₂O and H₂WO₄ precursors were carried out to synthesize Bi₂WO₆ by four different combinations. These four combinations were grouped in two main sets as 'treated in microwave reactor' and 'directly filtrated'; additionally these main sets were grouped into two subsets as 'calcined' and 'not calcined'. Calcination processes were conducted at temperatures of 400°C, 600°C, and 800°C. X-ray diffraction (XRD) and environmental scanning electron microscopy (ESEM) analyses were performed in order to investigate the crystal structure of powdered product synthesized with each combination. The highest crystallization of produced compounds was observed for calcination at 600°C from each main group.

Keywords : bismuth tungstate, crystallization, microwave, photocatalysts

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