Effect of the pH pre-adjustment on the formation of In2W3O12 andIn6WO12 powders: Cluster coordination and optical band gap

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Efecto del preajuste de pH en la formación de polvos In2W3O12 e In6WO12: Coordinación de grupo y banda óptica

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*Palabras clave:* In2W3O12, In6WO12, refinamiento Rietveld, Clusters, brecha de banda óptica

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***Electronic Supplementary Material***

Fig. SM1 illustrate XRD patterns of the amorphous system synthesized by the co-precipitation method (363 K for 1 h) by using a pH at 4, without any heat treatment.

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**Fig. SM1:** XRD patterns of In2W3O12-In6WO12 (amorphous) synthesized at 363 K for 1 h with pH at 4.

This figure revealed that the In2W3O12−In6WO12 precipitates formed at 363 K for 1 h have an amorphous state. Particularly, this powder have several defects as well as a high degree of structural disordering.

Thermogravimetric analysis (TGA) was carried out in a TGA-50 thermal analyzer (Shimadzu, Japan). These thermal measurements were performed in a temperature range from 298 K to 1123 K under synthetic air ﬂow (30 cm3/min), maintaining a heating rate of 278 K/min. TGA analysis is shown in Fig. SM2.



**Fig. SM2:** TGA curve from 298 K to 1123 K for In2W3O12−In6WO12 precipitates synthesized at 363 K for 1 h with pH at 4.

As it can be noted in Fig. SM2, the TGA curves indicates a mass loss of approximately 11.3 % from 348 K to 1073 K, which is related to dehydration or evaporation of the residual aqueous in In2W3O12−In6WO12 amorphous.