

Recovery of W(VI) From Wolframite Ore Using New Synthetic Schiff Base Derivative

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1. Thermal Analysis

The thermal degradation of amine groups and carboxylic groups in Figure S1a demonstrates that the first peak at maxima 100–228 °C corresponds to the removal of physically adsorbed and internal water, the second peak at 228–452 °C was assigned to the elimination of quaternary amine groups [1]. The peak at 670–890 °C along with the appearance of a new final weight residue stage may be due to the formation of the residual phosphorous oxide [2]. The stability of the HNAP/QA increased due to phosphorylation; the grafting of phosphorous element is a well-known method for increasing the thermal stability of fire-retardant materials.

As seen in the DSC analysis (Fig. S1b), the substituents bearing the quaternary amine groups are probably degraded in the temperature range 450–500 °C. the quaternary amine groups degradation peak appears at 483 °C [45, 55].

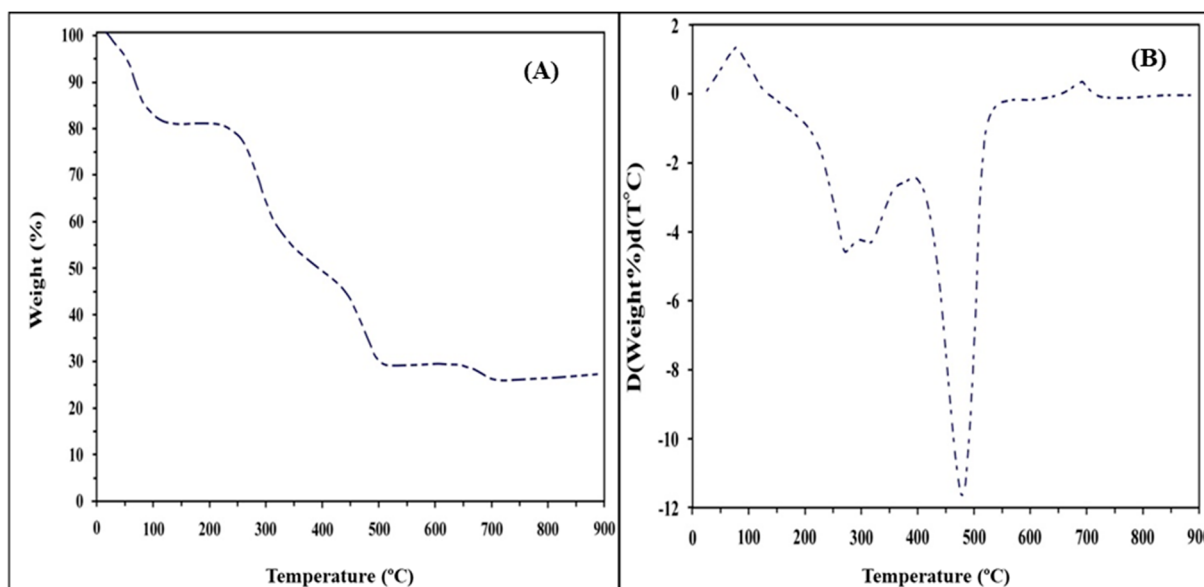


Fig. (S1): (A) TGA analysis of HNAP/QA and (B) DSC analysis of HNAP/QA.

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