A Keggin-type Arsenotungstate Anion-supported Transition Metal Complex: Hydrothermal Synthesis and Characterization of $[Fe(2,2'\text{-bipy})_3]_{1.5}[AsW^{VI}{}_{10}W^{V}{}_2O_{40}Fe(2,2'\text{-bipy})_2(H_2O)] \cdot 0.25H_2O$

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A Keggin-type arsenotungstate anion-supported iron-bipyridine complex, $[Fe(2,2'\text{-bipy})_3]_{1.5}$-$[AsW^{VI}{}_{10}W^{V}{}_2O_{40}Fe(2,2'\text{-bipy})_2(H_2O)] \cdot 0.25H_2O$, has been hydrothermally synthesized and characterized by IR and ESR spectra, TG-DTA analysis, and single crystal X-ray diffraction. Each structural unit of the title compound consists of one $[AsW^{VI}{}_{10}W^{V}{}_2O_{40}Fe(2,2'\text{-bipy})_2(H_2O)]^{3-}$ heteropolyanion, one and a half $[Fe(2,2'\text{-bipy})_3]^{2+}$ cations, and a quarter of an H_2O molecule. In the heteropolyanion the $[Fe(2,2'\text{-bipy})_2(H_2O)]^{2+}$ unit is covalently bonded to the reduced Keggin polyoxoanion $[AsW^{VI}{}_{10}W^{V}{}_2O_{40}]^{5-}$. The complex is monoclinic, space group $C2/c$ with $a = 46.8079(13)$, $b = 14.3990(4)$, $c = 26.1085(8)$ Å, $\beta = 90.00(5)°$, $Z = 8$, $D_c = 3.10$ g/cm^3.

Key words: Keggin-type Anions, Arsenotungstate, Hydrothermal Synthesis