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Hydrothermal Synthesis and Structural Characterization of an Open-framework Arsenic Vanadate: $\text{As}_2\text{V}_{10}\text{O}_{26}$. Samroeng Krachodnok, Kenneth J. Haller, School of Chemistry, Inst. of Science, Suranaree Univ. of Technology, Nakhon Ratchasima 30000 Thailand.

An open framework arsenic vanadate: $\text{As}_2\text{V}_{10}\text{O}_{26}$ system has been synthesized under hydrothermal reaction conditions and its structure characterized by single crystal X-ray diffraction. The structure is composed of $\text{V}_{10}\text{O}_{26}$ clusters, interconnected into a three-dimensional porous open-framework network by sharing the O atoms of AsO_4 tetrahedra. The oxovanadium cluster consists of two V_5O_9 pentamers linked together and to the four As atoms by eight $\mu_3\text{-O}$ atoms. The resulting framework has cavities about the $-43m$ sites. The minimum size of these cavities is defined by the $\mu_3\text{-O}$ atoms which are 17.5 Å apart across the cavity. The cavities are interconnected by hexagonal channels with a mean diameter of 11.8 Å extending along the [111] direction of the unit cell.

Crystal data: cubic, space group $I-43m$, $a = 16.274(2)$ Å, $V = 4310.1(9)$ Å³, $Mr = 1075.2$, $Z = 4$, $T = 298(2)$ K, $\lambda(\text{Mo K}\alpha) = 0.71073$ Å.