

Structure and Properties of $[(\text{CH}_2\text{OH})_3\text{CNH}_3]\text{H}_2\text{AsO}_4$

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Crystals of $[(\text{CH}_2\text{OH})_3\text{CNH}_3]\text{H}_2\text{AsO}_4$ have been grown, and X-ray diffraction analysis has shown them to be monoclinic, with space group P2_1 . A three-dimensional network of hydrogen bonds of the type $\text{O}-\text{H} \dots \text{O}$ and $\text{N}-\text{H} \dots \text{O}$ forms strong cation-cation and cation-anion linkages. Stabilizing the structure, they create favourable conditions in the crystal to be polar. The temperature dependent behaviour of the dielectric permittivity, measured along three crystal axes in the range 100 – 300 K, did not show any evidence for a phase transition, while the pyroelectric properties of the crystal confirmed the lack of a centre of symmetry.

These polar features locate $[(\text{CH}_2\text{OH})_3\text{CNH}_3]\text{H}_2\text{AsO}_4$ among the materials applicable to electrooptics and for the second harmonic generation.

Key words: X-ray Single Crystal Structure; Dielectric and Pyroelectric Properties.