

### MS30-P36 Crystal structure and hydrogen bonds pattern of a new hydrated hexafluoridosilicate based on adeninium

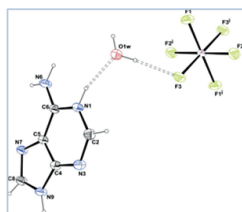
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A new hybrid compound based on aminopurinium and hexafluoridosilicate(IV) was synthesized by aqueous solution reaction and characterized by X-ray diffraction. The asymmetric unit of  $2C_5H_6N_5^+ \cdot SiF_6^{2-} \cdot 2H_2O$ , contains one adeninium cation, half of a hexafluoridosilicate anion located on an inversion centre and one lattice water molecule. The aminopurinium cations are connected through N—H...N hydrogen bonds involving one H atom of the  $-NH_2$  group and the H atom of the protonated N atom of the adenine ring system. The overall connection of the cation leads to the formation of planar ribbons parallel to (122). The hexafluoridosilicate anion and the water molecule are linked through O—H...F hydrogen bonds into chains parallel to [100]. The cationic ribbons and anionic chains are finally connected through additional N—H...O, N—H...F and O—H...F hydrogen bonds into a three-dimensional network in which layers of adeninium cations and fluoridosilicate anions alternate parallel to (001).



**Figure 1.** The principal structural units in the title compound. Displacement ellipsoids are drawn at the 30% probability level. H atoms are represented as small spheres of arbitrary radius. Hydrogen bonds are shown as dashed lines. [Symmetry code : (i)  $-x, -y, 2 - z$ ]

**Keywords:** crystal structure, purinium cation, hexafluoridosilicate anion, hydrogen bond.

### MS30-P37 Syntheses, structures, thermal stabilities and magnetic behaviors of two oxo-bridged lanthanide frameworks built up from dinuclear units

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Two three-dimensional polymeric lanthanides  $\{Ln_2(C_4H_2O_4)_3(H_2O)_4 \cdot 3H_2O\}_n$ , with  $Ln=Ho^{3+}$ ;  $Gd^{3+}$ , have been synthesized, characterized by IR spectroscopy, and studied by single crystal X-ray diffraction. Their magnetic and thermal behaviors have been investigated on the light of their structures. These isomorphous compounds, of layer-type structure, contain a non-centrosymmetric dinuclear unit  $Ln_2O_{12}(H_2O)_4$ , beside three lattice water molecules stabilizing the 3D open-framework. The building entities are linked together through one classical syn-anti  $\mu_2$ -carboxylato- $\kappa_1 O: \kappa_1 O'$  bridge and the semi-rigid carbon backbone of the two pentadentate independent ligands. Within the bi-polyhedra, two double  $\mu_2 -O^2$ ;  $\kappa_2 O, O'$  bridges and a syn-syn classical one, support the magnetic measurements indicating relatively weak and concomitant ferromagnetic/anti-ferromagnetic interactions. The two distinct thermal behaviors evidence the higher metal-water bond strength with the smaller cation, and reveal the great supramolecular effects generated by hydrogen-bonding patterns.

**Keywords:** lanthanide organic frameworks, dinuclear building unit, thermal stability, supramolecular interactions, magnetic behavior.