



Protonated N,N -Dioxide-4,4 -bipyridine, an Interesting Synthon for the Building of Polar H-Bonded Networks?

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Résumé en anglais

A slow liquid-gas diffusion method in strong acid conditions has allowed stabilizing for the first time in the solid state the diprotonated form of the 4,4-bipyridine-N,N-dioxide (bp4do), H(2)bp4do(2+) as two polymorphs of the chloride salt (H(2)bp4do)Cl-2, while in the presence of a metallic salt M((III))Br-3 (M = Bi, Sb), the monoprotated form Hbp4do(+) is mainly stabilized as (Hbp4do)(2)[Sb2Br8] and (H(2)bp4do)(Hbp4do)(4-)[Bi4Br18]center dot 2H(2)O. The dehydration of this last phase leads to (H(2)bp4do)(Hbp4do)(4)[Bi4Br18]. In the structures of (H(2)bp4do)Cl-2 salts, the hydroxyl H atoms point toward the chloride anions leading to close (O)H center dot center dot center dot Cl contacts in the range 1.831-1.839 angstrom. A one-dimensional network of H-bonded Hbp4do(+) cations is found in the structure of (Hbp4do)(2)[Sb2Br8], whereas H-bonded supramolecular cations of five entities are found in the structures of bromobismuthate salts. In all the halometallate structures, X-ray analyses (293 K and 120 K data) did not allow us to locate the acid H atoms of protonated bp4do molecules certainly due to a disorder phenomenon but also revealing an asymmetrical H-bonding situation. The bromobismuthate hybrids are nonlinear optical active with a powder second harmonic generation efficiency being half that of urea.

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Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=19119](http://okina.univ-angers.fr/publications?f[author]=19119)
 [2] <http://okina.univ-angers.fr/magali.allain/publications>
 [3] <http://okina.univ-angers.fr/nicolas.mercier/publications>

[4] [http://okina.univ-angers.fr/publications?f\[author\]=3408](http://okina.univ-angers.fr/publications?f[author]=3408)

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