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The dipole moments and structure of organophosphorus compounds: Vector-additive scheme

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Abstract

The dipole moments of bonds formed by phosphorus in different coordination states were generalized, tabulated, and analyzed. The general and "fractional" vector-additive schemes for calculating dipole moments are discussed. The high electronic lability of the majority of bonds formed by phosphorus was shown to require care in the use of their polarities for studying the spatial structure of organophosphorus derivatives and electronic interactions in them. In all instances, the environment of the phosphorus atom in model compounds should be closest to that in the molecule under study. Using the method of dipole moments in combination with the complementary electro- and magnetooptical and spectral methods increases the reliability of the results.