

Monomeric and Dimeric (Aminomethylidene)phosphines and -Arsines

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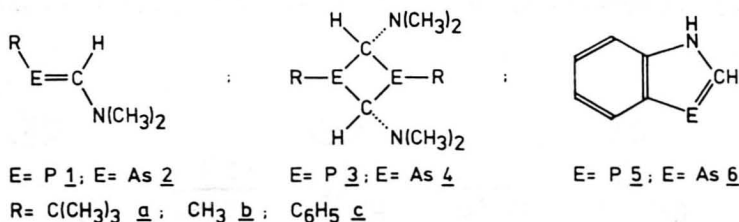
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In (dimethylaminomethylidene)phosphines (1) [1] and -arsines (2) the internal



rotation of the dimethylamino group is hindered by a barrier of 50 to 55 kJmol⁻¹ - analogous to the corresponding amidines. In order to evaluate the influence of this conjugative effect upon the P=C and (P)-C-N bond lengths, single crystal x-ray structure determinations of 1a and 2a have been carried out. For comparison, the cyclic (aminomethylidene)phosphine 1H-1,3-benzazaphosphole 5 [2] as well as the dimeric compounds 3a, 3b, and 3c [3] have been analyzed, too, while the arsenic derivative 6 was studied by others [4]. The diarsenes 4 could not yet be isolated. The structural results indicate the E=C bonds in 1a, 2a, 5, and 6 to be scarcely elongated, the (E)-C-N bonds, however, to be shortened considerably with respect to the dimers.

- [1] Becker, G.; Mundt, O.: Z. anorg. allg. Chem. 462 (1980) 130; Becker, G.; Uhl, W.; Wessely, H.-J.: *ibid.* 479 (1981) 41.
 [2] Issleib, K.; Vollmer, R.: Z. anorg. allg. Chem. 481 (1981) 22.
 [3] Becker, G.; Massa, W.; Mundt, O.; Schmidt, R.: Z. anorg. allg. Chem. 485 (1982) 23.
 [4] Richter, R.; Sieler, J.; Richter, A.; Heinicke, J.; Tzschach, A.; Lindqvist, O.: Z. anorg. allg. Chem. 501 (1983) 146.