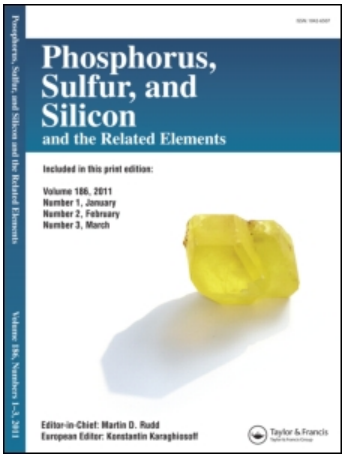

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Phosphonium and Ammonium Polyborates

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Phosphonium and Ammonium Polyborates

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Polyborates were prepared by slow hydrolysis of boric acid esters $B(OR)_3$ (R=CH_3, i-C_3H_7, n-C_4H_9, c-C_6H_{11}, n-C_8H_{17}) in organic solvents such as acetone in the presence of solutions of quaternary tetraphenylphosphonium or triphenylmethylphosphonium hydroxides. Some amines, some ammonium hydroxides or, for comparison, tetraphenylarsonium hydroxide with a small quantity of water. The basic component must be basic enough and should be bulky; the less bulky bases build pentaborates, the more bulky ones heptaborates, independent of molar ratios, if only the boron concentration is sufficient. The acetone containing pentaborates $[(C_6H_5)_4P][B_5O_6(OH)_4] \cdot$ 0,5 acetone and $[(C_6H_5)_3PCH_3][B_5O_6(OH)_4] \cdot$ 0,5 acetone were isolated, in contrary to the solvent free $[(C_6H_5)_4As][B_5O_6(OH)_4]$.
Heptaborates with the anion $[B_7O_6(OH)_{10}]^-$ are formed with tetra-n-butylammonium and tri-n-butylbenzylammonium cations.