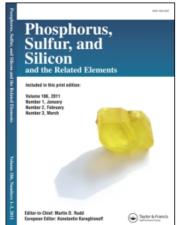
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## Synthesis and Investigation of Double Condensed Phosphates of Scandium and Alkali Metals

M. A. Avaliani<sup>a</sup>; I. V. Tananaev<sup>b</sup>; M. K. Gvelesiani<sup>a</sup>; V. N. Gaprindashvili<sup>a</sup>
<sup>a</sup> Institute of Inorganic Chemistry and Electrochemistry of the Georgian Academy of Sciences, Tbilisi,
GSSR <sup>b</sup> N.S. Kurnakov Institute of General and Inorganic Chemistry Academy of Sciences of the USSR,
Moscow, USSR

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## SYNTHESIS AND INVESTIGATION OF DOUBLE CONDENSED PHOSPHATES OF SCANDIUM AND ALKALI METALS

M.A.AVALIANI, I.V.TANANAEVa, M.K.GVELESIANI, and  $\overline{\text{V.N.GAPRINDA}}\text{SHVILI}$ 

Institute of Inorganic Chemistry and Electrochemistry of the Georgian Academy of Sciences, Jikia Str. 7, 380086 Tbilisi, GSSR

aN.S.Kurnakov Institute of General and Inorganic Chemistry Academy of Sciences of the USSR, Lenin pr. 41, Moscow 117071, USSR

The present data are the result of experiments on synthesis and investigation of structure of an earlier unknown class of compounds: double condensed phosphates of scandium and alkali metals. The method of synthesis of double phosphates from solution-melts of phosphoric acids at 150-500°C was applied. At lower temperatures (150-240°) double acid diphosphates  ${\rm MSc\,(H_2P_2O_7)_2}$  (where M - Li, Na, K) were crystallized. At 240-410 depending on initial relationship of the components, a number of double compounds (triphosphates of sodium-scandium and potassium-scandium, polyphosphate  $[LiSc(PO_3)_4]_x$ , ultraphosphate  $Na_3ScP_8O_{23}$  and cyclophosphate  $K_2Sc_2P_8O_{24}$ ) was obtained. Double ultraphosphate of sodium--scandium belongs to a rare type of double compounds. Up to now only one ultraphosphate of sodium-iron was known. At 415-500° double medium diphosphates MScP<sub>2</sub>O<sub>7</sub> were synthesized. Comparing the results of double phosphates of scandium, gallium, and indium with literary data, we conclude that condensed compounds of scandium, according to their composition and structure, coincide with phosphates of light trivalent metals (Ga, Fe, Cr, Al) and are not similar to corresponding compounds of rare earth elements.