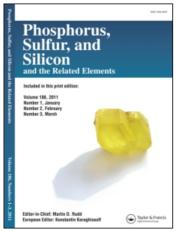
This article was downloaded by:

On: 29 January 2011

Access details: Access Details: Free Access

Publisher Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information: http://www.informaworld.com/smpp/title~content=t713618290

Synthesis of the Cu $_{2\text{-x}}$ Mg $_{x}$ P $_{4}$ O $_{12}$ and Ni $_{2\text{-x}}$ Mg $_{x}$ P $_{4}$ O $_{12}$ D. Brandova a ; M. Trojan a

^a Institute of Chemical Technology, Pardubice, Czechoslovakia

To cite this Article Brandova, D. and Trojan, M.(1990) 'Synthesis of the Cu_{2-x} Mg_x P_4 O_{12} and Ni_{2-x} Mg_x P_4 O_{12} ', Phosphorus, Sulfur, and Silicon and the Related Elements, 51: 1, 454

To link to this Article: DOI: 10.1080/10426509008040978 URL: http://dx.doi.org/10.1080/10426509008040978

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

SYNTHESIS OF THE Cu_{2-x}Mg_xP₄O₁₂ AND Ni_{2-x}Mg_xP₄O₁₂

D.BRANDOVÂ and M.TROJAN Institute of Chemical Technology, Lenin sqr. 565, Pardubice, 532 10 Czechoslovakia

Some binary cyclo-tetraphosphates have been synthetized by means of thermal dehydration of the starting binary dihydrogenphosphate. The mechanism of dehydration and condensation reactions in dependence on various special conditions of thermal preparation (temp. rate, water vapour pressure, using nuclei) has been studied. The methods of TA at quasi-isothermal and quasi-isobaric conditions with combination of calcination experiments have been used for these purposes. The reaction products obtained were analyzed by chromatography, IR-spectroscopy, X-ray diffraction analysis, electron microscopy and AAS. The course, the rate and the yields of the condensation reactions of formation of the main products considered Cu_{2-x}Mg_xP₄O₁₂ and Ni_{2-x}Mg_xP₄O₁₂, have been investigated. These coloured products (green or yellow-green) crystallize in the monoclinic system, C2c group (where $x \in (0; 2)$). Their structural parameters have the values for $Cu_{2-x}Mg_xP_4O_{12}$ or $Ni_{2-x}Mg_xP_4O_{12}$ (x = 2 to x = 0): a = 11.749(5) to 12.546(7) or 11.644(5) Å, b = 8.278(4)to 8.092(5) or 8.238(4) Å, c = 9.905(4) to 9.565(5) or 9.813 $^{\circ}$ and $^{\circ}$ = 118.92(2) $^{\circ}$ to 118.63(3) $^{\circ}$ or 118.53(2) $^{\circ}$, respectively.