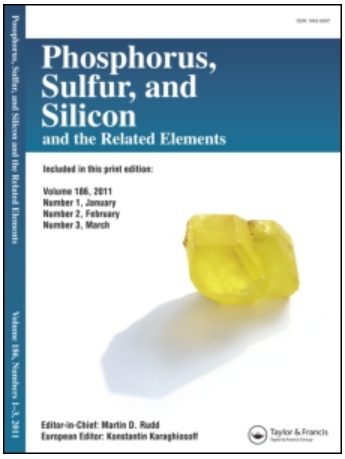

Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

Intrasphere Transformations of Platinum Nitrocomplexes in Phosphoric Acid Solutions as Method of Synthesis of Different Oligomeric Platinum Phosphates

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To cite this Article Muraveiskaya, G. S. , Abashkin, V. E. , Evstaf'eva, O. N. , Golovaneva, I. F. and Korsunskii, V. I.(1990) 'Intrasphere Transformations of Platinum Nitrocomplexes in Phosphoric Acid Solutions as Method of Synthesis of Different Oligomeric Platinum Phosphates', Phosphorus, Sulfur, and Silicon and the Related Elements, 51: 1, 432
To link to this Article: DOI: 10.1080/10426509008040956
URL: http://dx.doi.org/10.1080/10426509008040956

Phosphorus, Sulfur, and Silicon, 1990, Vols. 51/52, p. 432
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INTRASPHERE TRANSFORMATIONS OF PLATINUM NITROCOMPLEXES IN PHOSPHORIC ACID SOLUTIONS AS METHOD OF SYNTHESIS OF DIFFERENT OLIGOMERIC PLATINUM PHOSPHATES

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Platinum phosphatocomplexes of various types were for the first time obtained in multi-stage redox-interaction of isomers $Pt(NH_3)_2(NO_2)_2$ with conc.H_3PO_4: phosphatonitrosoamines cis-$HPt(NH_2NONH_3)NO_2(H_2PO_4)_2H_3PO_4$ (I), trans-$Pt(NH_3)_2 \cdot NO_2NO(H_2PO_4)_2H_3PO_4$ (II); phosphatonitrodiamines cis-$(H_n) \cdot [Pt(NH_3)_4(\mu\text{-}HPO_4)(NO_2)_2](H_3PO_4)_4(H_2O)_2$ (III), trans-$(H_n) \cdot [Pt(NH_3)_2(\text{-}NO_2)](H_2PO_4)_{1.25}(H_2O)_{1.5}$ (IV); phosphatonitromonoamines $(H)Pt_2(NH_3)_2(\mu\text{-}NO_2)(\mu\text{-}HPO_4)_2 \cdot 1.5H_2O$ (V); tetraphosphates $(NH_4)_2[Pt_2(HPO_4)_4(H_2O)_2]$ (VI) etc, $(H)_{2+n}(NH_4)_2 \cdot Pt_2(HPO_4)_4(H_2O)_2$ (VII); phosphatodiamines cis-$(H)_n[Pt_2(NH_3 \cdot L)_2(\mu\text{-}HPO_4)_2]$ (VIII, IX), (L=NH_3, H_2O), n 0. Molecular structures of the compounds IV-IX were derived from analysis of AB, IR, XPS, ESR and RDF spectra: binuclear clusters (VI, VII) and oligomeric chains consisting of platinum atoms bonded both by direct metal-metal interaction and by bridging groups (IV, V, VIII, IX) (1). III, IV, VIII, IX are classifed as platinum blues of a new type with inorganic anions as bridging ligands: NO_2^-(IV), HPO_4^{2-}(III, VIII, IX). IV is the first trans-platinum blue. cis-Diamines form adducts in which the medium molecules are bonded with cis-ammonias. trans-Diamines do not form such adducts. Paper (1) presents a general mechanism of compound formations consisting in generation of intermediate Pt(III) forms followed by interaction with environmental species.

(1) G.S.Muraveiskaya, V.E.Abashkin, O.N.Evstaf'eva, I.F. Golovaneva, Zh. neorgan. Khimii, v. 34, No 4 (1989).