

This article was downloaded by:

On: 28 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>

### Troika Acid Derivatives: Multifunctional Ligands for Metal Complexation in Solution and on Solid Supports. A Novel, Linear Trinickel ("Troitsa") Complex

Boris A. Kashemirov<sup>a</sup>; James M. Carrick<sup>a</sup>; Robert Bau<sup>a</sup>; Charles E. Mckenna<sup>a</sup>

<sup>a</sup> Department of Chemistry, University of Southern California, Los Angeles, CA, USA

Online publication date: 27 October 2010

**To cite this Article** Kashemirov, Boris A. , Carrick, James M. , Bau, Robert and Mckenna, Charles E.(2002) 'Troika Acid Derivatives: Multifunctional Ligands for Metal Complexation in Solution and on Solid Supports. A Novel, Linear Trinickel ("Troitsa") Complex', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 177: 10, 2273

**To link to this Article:** DOI: 10.1080/10426500214110

URL: <http://dx.doi.org/10.1080/10426500214110>

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.

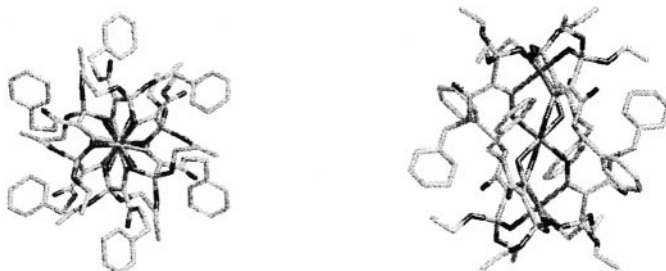
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any 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.

## TROIKA ACID DERIVATIVES: MULTIFUNCTIONAL LIGANDS FOR METAL COMPLEXATION IN SOLUTION AND ON SOLID SUPPORTS. A NOVEL, LINEAR TRINICKEL ("TROITSA") COMPLEX

*Boris A. Kashemirov, James M. Carrick, Robert Bau,  
and Charles E. Mckenna\**  
*Department of Chemistry, University of Southern California,  
Los Angeles, CA 90089-0744, USA*

(Received July 29, 2001; accepted December 25, 2001)

A series of amide and nitrile derivatives of "troika acid" (phosphonoglyoxylic acid oxime) were synthesized for evaluation as ligands of transition metal cations (such as  $\text{Cu}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ) that may contaminate power plant wastewaters. Studies of metal complexation in solution using eight model ligands and solid support linkage studies led to the preparation of new polystyrene (PS) materials with the following PS bead-immobilized ligands:  $(\text{EtO})_2\text{P}(\text{O})\text{C}(=\text{NOH})\text{-C}(\text{O})\text{NHCH}_2\text{-}$  and  $\text{NCC}(=\text{NOH})\text{P}(\text{O})(\text{OEt})\text{NHCH}_2\text{-}$ . A novel, neutral *N*-benzyl (*E*)-(diethoxyphosphinyl)(hydroxyimino)acetamide (**1**) complex of Ni(II), **2**, was also synthesized. The X-ray crystal structure of **2** reveals six **1** ligands, chelating a trinity ("troitsa") of Ni cations disposed in an unusual linear array (*left*: view along  $\text{Ni}_3$  axis; *right*: view perpendicular to  $\text{Ni}_3$  axis).



We thank the EPRI for a grant supporting this research.

This article is a part of the XVth International Conference on Phosphorus Chemistry (ICPC 15) proceedings published in *Phosphorus, Sulfur, and Silicon*, Volume 177, Numbers 6/7 and 8/9.