

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>

Synthesis of Thin-Film Acidic Ti(IV) and Zr(IV) Phosphates Deposited on Surface of Fiber and Investigation their Properties

Leonid Lynkov^a; Vasily Glybin^b; Tamara Selivyorstova^b; Vadim Bogush^a

^a Belarusian State University of Informatics and Radioelectronic, Minsk, Belarus ^b Belarusian State Technological University, Minsk

To cite this Article Lynkov, Leonid , Glybin, Vasily , Selivyorstova, Tamara and Bogush, Vadim(1999) 'Synthesis of Thin-Film Acidic Ti(IV) and Zr(IV) Phosphates Deposited on Surface of Fiber and Investigation their Properties', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 147: 1, 37

To link to this Article: DOI: 10.1080/10426509908053499

URL: <http://dx.doi.org/10.1080/10426509908053499>

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 Thin-Film Acidic Ti(IV) and Zr(IV) Phosphates Deposited on Surface of Fiber and Investigation their Properties

LEONID LYNKOV^a, VASILY GLYBIN^b,
 TAMARA SELIVYORSTOVA^b and VADIM BOGUSH^a

^aBelarusian State University of Informatics and Radioelectronics, 6, P. Brovka Str., Minsk, 220027, Belarus and ^bBelarusian State Technological University, 13, Sverdlova Str., Minsk, 220630

Cellulosic fibres present great interest as matrix for non-organic synthesis with the use of ion-molecular layering method [1]. This method consists in realization of the successive reactions with the surface functional groups. Synthesized materials can be of scientific and technical interest.

Synthesis is carried in two steps. First step includes phosphorilling of cellulosic fibers. At the second step modified fibers were treated by water and non-water solution of Ti(IV) and Zr(IV) compounds and phosphoric acid.

Synthesized materials was tested by microscope and X-Ray analyses. For testing sorption activity on Na⁺, Cs⁺, Sr²⁺ ions under static conditions chemical and physical methods for are applied.

Table. Relation of ion-layering cycle numbers and sorption capacity for modified cellulosic fibres.

Total quantity of - OPO(OH) ₂ and -O ₂ PO(OH) groups*, mmol/g	Number of cycles	Static ion-exchange capacity, mmol-eq/g		
		Na ⁺	Cs ⁺	Sr ²⁺
		pH=10-12	pH=3-4	
Phosphate Ti(IV)				
-	1	1,56	0,36 (47,8)	0,48 (21,0)
-	2	1,78	0,59 (78,4)	0,50 (21,9)
Phosphate Zr(IV)				
1,7	1	1,80	-	0,55 (24,1)
1,7	4	1,80	0,54 (71,8)	0,64 (28,0)
2,0	4	2,24	0,78 (103,7)	0,72 (31,6)

References

- [1] Aleskovsky V.B., *Course of supermolecular compounds chemistry*. Leningrad (1990).