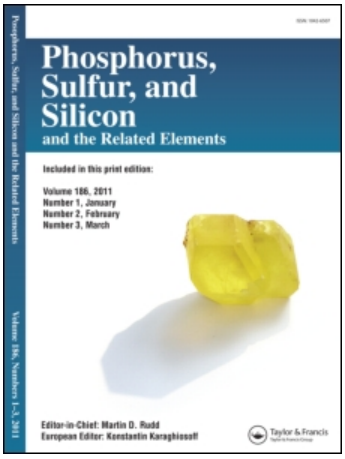

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Leonid Lynkov[a]; Vasily Glybin[b]; Tamara Selivyorstova[b]; Vadim Bogush[a]
[a] Belarusian State University of Informatics and Radioelectronic, Minsk, Belarus [b] Belarusian State Technological University, Minsk

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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]

[a]*Belarusian State University of Informatics and Radioelectronics, 6, P. Brovka Str., Minsk, 220027, Belarus and* [b]*Belarusian 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^+, Sr^{2+} 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 $^{-O}_{-O}$)PO(OH) groups*, mmol/g	Number of cycles	Static ion-exchange capacity, mmol-equ/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).