

## Accepted Manuscript

Title: STIMULI-RESPONSIVE HYBRID POROUS POLYMERS BASED ON ACETALS OF POLYVINYL ALCOHOL AND ACRYLIC HYDROGELS

Authors: Yu. Samchenko, O. Korotych, L. Kernosenko, S. Krykليا, O. Litsis, M. Skoryk, T. Poltoratska, N. Pasmurtseva



PII: S0927-7757(18)30092-X  
DOI: <https://doi.org/10.1016/j.colsurfa.2018.02.015>  
Reference: COLSUA 22267

To appear in: *Colloids and Surfaces A: Physicochem. Eng. Aspects*

Received date: 15-12-2017  
Revised date: 6-2-2018  
Accepted date: 8-2-2018

Please cite this article as: Samchenko Y, Korotych O, Kernosenko L, Krykليا S, Litsis O, Skoryk M, Poltoratska T, Pasmurtseva N, STIMULI-RESPONSIVE HYBRID POROUS POLYMERS BASED ON ACETALS OF POLYVINYL ALCOHOL AND ACRYLIC HYDROGELS, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* (2018), <https://doi.org/10.1016/j.colsurfa.2018.02.015>

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# STIMULI-RESPONSIVE HYBRID POROUS POLYMERS BASED ON ACETALS OF POLYVINYL ALCOHOL AND ACRYLIC HYDROGELS

Yu. Samchenko <sup>1,a</sup>, O. Korotych <sup>a, b, c</sup>, L. Kernosenko <sup>a</sup>, S. Kryklya <sup>a</sup>, O. Litsis <sup>d</sup>, M. Skoryk <sup>e</sup>, T. Poltoratska <sup>a</sup>, and N. Pasmurtseva <sup>a</sup>

<sup>a</sup> F. D. Ovcharenko Institute of Biocolloid Chemistry, Department of Functional Hydrogels  
42 Akademika Vernadskogo Blvd., Kyiv-03142, Ukraine

<sup>b</sup> University of Florida, J. Crayton Pruitt Family Department of Biomedical Engineering  
1275 Center Dr., Gainesville, FL 32611, USA

<sup>c</sup> University of Florida, Department of Chemical Engineering  
1030 Center Dr. Gainesville, FL 32611, USA

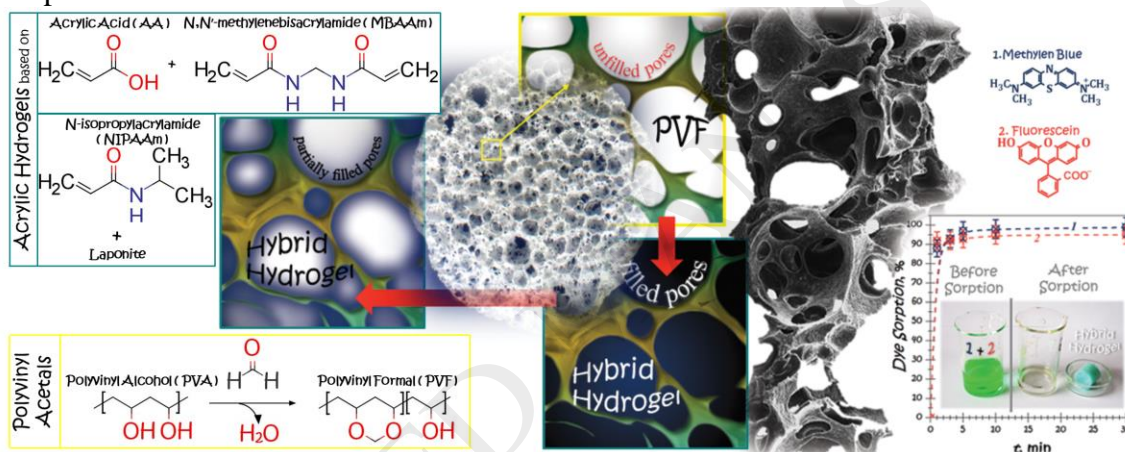
<sup>d</sup> Taras Shevchenko National University, Department of Chemistry  
64/13, Volodymyrska St., Kyiv 01601, Ukraine

<sup>e</sup> NanoMedTech LLC

68 Antonovycha St., Kyiv 03680, Ukraine

<sup>1</sup>All correspondence and requests for materials should be addressed to Yu. Samchenko at [yu1sam@yahoo.com](mailto:yu1sam@yahoo.com)

## Graphical abstract



## Abstract

Hybrid hydrogels have gained a lot of attention due to their unique properties which can be tailored for a variety of applications. In this paper, hybrid porous polymers based on sponge-like acetals of polyvinyl alcohol (polyvinyl formals) with functionalized pore structure by pH-sensitive or thermosensitive hydrogels have been synthesized. Synergistic improvement of hybrid hydrogel physicochemical properties (mechanical, swelling, and sorption characteristics) compared to the components from which they were constructed is demonstrated, as well as application of these materials for sorption and removal of model dyes (methylene blue and fluorescein) from aqueous solutions. The hybrid materials have the potential to be used as effective sorbents in numerous applications such as industrial wastewater treatment due to their improved mechanical properties, high-water retention, fast sorption, high sorption capacity, and low cost.

## List of abbreviations:

AA	acrylic acid
APS	ammonium persulfate, $(\text{NH}_4)_2\text{S}_2\text{O}_8$
CPD	critical point drying
ESD	equilibrium swelling degree
FL	fluorescein
FTIR	Fourier transform infrared spectroscopy
HH	hybrid hydrogel
IR	infrared
MB	methylene blue

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