

Hot Topics in Silicon Chemistry

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Abstract The symposium “Silicones and Silicone-Modified Materials VI” was hosted by the *American Chemical Society (ACS)* during the 243rd National Meeting & Exposition in San Diego, California, USA (March 25–29, 2012). At this “Silicones VI” symposium, I circulated a blank notepad and I then asked the members of the audience for responses to the question “What are the three hot topics in silicon chemistry in March 2012?” These responses are given herein along with a brief discussion of how they may guide us in our future teaching, research and service.

Keywords Silicon · Silicones · Silica · Silanes · Silicon chemistry

1 Introduction

The symposium “Silicones and Silicone-Modified Materials VI” was hosted by the *American Chemical Society (ACS)* during the 243rd National Meeting & Exposition in San Diego, California, USA (March 25–29, 2012). At the symposium, I used my initiative as the symposium chairman to circulate a notepad and I then asked the members of the audience to provide written responses to the simple question “What are the three hot topics in silicon chemistry in March of 2012?”

These responses are given below in Section 2 as a list.

The intention here is to simply present the responses “as is” and I have added no topics to the list myself. The responses are presented with minor editing for spelling and also to avoid any significant repetition of topics. Furthermore, no attempt has been made to rank order or to group these responses.

2 The List of Hot Topics in Silicon Chemistry (March, 2012)

- Metamaterials
- Silicones with precise architectures
- POSS materials
- Silicone dendritic polymers
- Alternatives to platinum catalysts
- Transport properties and membranes
- Silicone release properties
- Pressure sensitive adhesives
- Hydrophilic silicones
- Additives for electrical, magnetic and X-Ray properties
- Low permeable silicones
- Moisture management in silicones
- Biological uses
- Nanocomposite materials with POSS and silanes
- Intraocular lenses
- POSS for RO desalination
- Sol-gel silicones water treatment
- POSS-CNT coupling
- Silane anticorrosion coatings
- Alternatives to “SPUR” technology for improving solubility in PDMS
- Organic-Inorganic hybrid materials

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Fig. 1 Some of the attendees at the ACS “Silicones and Silicone-Modified Materials VI” symposium in San Diego, California, USA

Inorganic-Inorganic hybrid materials
 SiMac
 Hard segment containing silicones
 Inexpensive trifluoropropyl silicones
 Silicone materials for ophthalmic applications
 Nanostructure materials
 Silicones used in electronics (OLEDs, OPVs, capacitors and batteries)
 Post polymerization functionalization of silicones
 ^1H and ^{29}NMR
 Low modulus siloxane elastomers

Any input on the above list will be made most welcome by the editorial team of the journal *SILICON* and these may be published in due course.

3 Some Possible Outcomes From the List of Hot Topics in Silicon Chemistry

In an *ENDPIECE* published in *SILICON* in 2014, I stated “...one’s professorial duties include teaching, research and service” [1]. So as these “hot topics in silicon chemistry” were deemed to be “cutting edge or blue sky” in March of 2012 they will not yet be included in the textbooks that are used for teaching in higher education. As to research, it will be useful for all of us active researchers to carefully monitor

whether or not they are hot topics for research funding and for new technologies and for peer-reviewed publications.

4 Concluding Remarks

For anyone that was not able to attend the Silicone and Silicone-Modified Materials I-VI symposia (see Fig. 1), then the *ACS* Polymer Preprints from the meetings are widely available in libraries, on line, on CD from the *POLY* office and from *ACS*. The abstracts of all the talks at the various *ACS* National Meetings & Expositions are also available from *ACS*. The five books that have been published from the series of Silicone and Silicone-Modified Materials symposia by *ACS Books* and *Oxford University Press* are given in the references section [2–6].

Roll on “Silicones and Silicone-Modified Materials VII” which will be held in Boston, Massachusetts, USA in the summer of 2015.

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