Journal of Applied Polymer Science

Polymers for Biomedical Applications

Polymeric soft materials have the distinct advantage of being conformable to living tissue, thus being uniquely suitable for biomedical applications of all kinds. In addition, many polymers can be tailored with specific degradation and mechanical properties that make them very advantageous when deployed in contact with biological tissues.

For example, polymers can be used as drug delivery vehicles. This can include polymeric particles specifically targeted for release in specific conditions, such as the pH-sensitive carriers shown by Kong and coworkers,[1] or thermal-sensitive carriers as shown by Teixeira et al.[2]

Tissue engineering scaffolds are another area in which polymeric materials are widely employed, as in the work by Vozzi et al.[3] Electrospun polymeric nanofibers also come in handy when designing vascular prostheses, as shown by Mazalevska et al.[4]

At the same time, topical applications such as wound dressings are feasible and they have generated an enormous body of literature, especially with respect to textiles and nonwoven fibrous materials. This is shown in the work of McCord and coworker[5] about nanofiber wound dressings, as well as in the article by Cusola et al.[6] exemplifying long-term release of antibacterials.

At the same time, biomedical sensors also benefit from the exquisite tailoring possibilities offered by conducting polymers, as shown by Ramya and Sangaranarayanan[7] in the case of glucose detection.

Conversely, applications that do not look strictly biomedical at first sight offer potential for substantial improvement of health and sanitary conditions, and this is the reason why we include here articles on removal of chromium from water such as in Huang et al.[8]

The broad scope of polymeric materials for biomedical applications is captured on a regular basis by the *Journal of Applied Polymer Science*, as this special issue shows. We are looking forward to continuously higher quality and quantity of submissions in this broad area, which is crucial from an applications standpoint and generates enormous industrial investment as well as startups, some examples of which we are capturing in our ongoing interview series on materialsviews.com.

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