

Materials Technology 2019: Design of high refractive index polymers for ophthalmological applications- Norbert Hampp, University of Marburg, Germany

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Abstract

The present tools to predict key parameters of polymers for intraocular lenses, i.e. refractive index, Abbe number, and glass transition point from easy available basic data. The theoretical models work nicely with acrylate and silicone base polymers. The development of new polymers is still run in a try-and-error approach. As apart from the above mentioned three key parameters numerous other parameters need to be considered, theoretical tools drastically reduce lab work and save time. Several new polymers have been designed. They were fully characterized and tested for their biocompatibility in rabbits (see Fig.1). Silicone backbone polymers with selected side groups allow meeting the required parameters for high refractive index polymers for intraocular lenses, i.e. refractive index $n \geq 1.58$, Abbe ≥ 30 and glass transition temperature $\leq 20^\circ\text{C}$. Biography: Norbert Hampp has completed his first PhD in 1986 in Pharmaceutical Biology and his second PhD in 1992 in Physical Chemistry. Currently he serves as the Dean of the chemical department at Marburg University, Germany. He has published more than 220 papers in reputed journals. He filed 19 patent families.

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