Polymer Optical Fiber Modification by Etching using Hansen Solubility Parameters - A Case Study of TOPAS, Zeonex and PMMA - DTU Orbit (17/10/2019)

Solvents can be used in the fabrication process of Polymer Optical Fiber (POF) sensors, as tapering or etching agents. We present a general approach - the use of Hansen Solubility Parameters (HSPs) - for identifying usable solvents for etching and present the first results on etching of TOPAS and Zeonex POFs. We also present alternatives to acetone in the form of trichloroethylene and THF, as an etching solvents for PMMA, as well as results on the etching rate dependence on fiber orientation and annealing.

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