

Abstract Submitted
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UV Induced Degradation of Polycarbonate-Based Lens Materials and Implications for the Health Care Field¹ J.R. HARKAY, JERRY HENRY, Keene State College — Experimental research is being carried out at Keene State at the undergraduate level that utilizes facilities in both physics and chemistry to study the effects of mono- and polychromatic UV radiation from various sources, including a Deuterium lamp, a solarization unit (at Polyonics, a local industry), and the Sun, to study the photodegradation of polycarbonate-based lens materials used to produce eyewear. Literature in the field of optometry and ophthalmology indicates a correlation between exposure to the UVB band of natural sunlight and the onset of cataract formation, as well as other eye disorders. The public is usually advised that plastic eyeglass lenses will provide protection from this damaging radiation. It is well known that polycarbonate plastic “yellows” when exposed to intense sunlight and, particularly, UV light^{1,2}, either via photo-Fries rearrangement or by a photooxidative process, forming polyconjugated systems and is an industrial concern primarily for cosmetic reasons. We have preliminary data, however, that indicates that the yellowing” is an indication of a more sinister problem in the case of eyeglasses in that it is accompanied by an increase in transmissivity in the UVB band where the wearer expects and needs protection. Our group includes a local optometrist who will share results with peers in his field. [1] A. Andradý, J. Polymer Sci., **42**, 1991 [2] E. P. Gorelov, Inst. Khim. Fiz., Russian Federation

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