AbstractID: 1735 Title: OCT Scanning Properties of PRESAGE - A 3D Radiochromic Solid Polymer Dosimeter

PRESAGE™ is a new type of 3D dosimeter composed of clear rigid polyurethane and the radiochromic leuco dye, leucomalachite green. In the polyurethane matrix the leucomalachite green has a maximum absorbance at 633 nm and is therefore compatible with the OCT-OPUS™ laser CT scanner (MGS Research, Inc., Madison, CT) operating at the principal He-Ne laser wavelength of 633nm.

One inherent advantage of PRESAGE™ is that it does not need to be held in a container, which eliminates the need to match the refractive indices of a container wall and the polyurethane dosimeter. The refractive index of PRESAGE™ is ca. 1.515, which is matched for OCT scanning with a mixture of organic phthalates. OCT scanning of PRESAGE™ dosimeters has detected doses on the order of 50 cGy. The two areas that need additional study and are detected during OCT scanning are the variability of the refractive index across the polymer and polymer heterogeneities. The possible causes and consequences of these variations will be presented.

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