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## RADIATION EFFECT ON THE OPTICAL PROPERTIES OF DOP/PVC PLASTISOL USED AS EQUIVALENT-TISSUE IN RADIATION THERAPY

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Recently a tissue-equivalent was developed at FEQ/UNICAMP which is made of DOP (76%) and PVC (23%) basically. This bolus has the function of displacing the maximum dose to the skin surface in radiation therapy of skin and breast cancer. In this way the healthy tissues around the tumor are protected. Research at the Center for Women's Health (CAISM) of the Clinical Hospital of UNICAMP has shown that this material can be used as the equivalent-tissue of skin. This material must be transparent enough to visualize the treatment region. In the present work this material was irradiated by gamma rays and electron beam at doses up to 75kGy. The radiation effect on the optical properties were studied. Changes in color were quantified by yellowness index and diffusion reflectance spectroscopy. The ionizing radiation promotes the formation of chromophoric groups, easily perceptible at 50kGy (electron beam) or at 75kGy (gamma rays) and induces the formation of a small amount of conjugated polyenes as a consequence of PVC dehydrochlorination, specially by electron beam. This material does not change its color at dose of 0.001kGy which is the total dose used in radiotherapy for each patient.

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