

The tissue inhomogeneity corrections based on Batho and Equivalent SAR methods were tested and compared with the measurements in $d(48.5)+Be$ neutron beam from Harper Hospital superconducting cyclotron. Dose profiles in directions parallel and perpendicular to the beam central axis were measured in A150 tissue equivalent (TE) plastic lateral and behind to various tissue substitutes embodied into the phantom. The elemental composition and densities of these materials matched those of the hard (B110) and cortical (B100) bones as well as the lung (LNSR4) and adipose (AVBRIII) tissues. The total dose was measured with a small TE ionization chamber, while the high and low LET components were separated using TLD-300. The correction factors were obtained by comparison with the dose to A150 plastic at similar locations in a water phantom. The dose perturbations correlated with density, elemental composition and kerma of the material compared with the reference homogeneous phantom. At points located behind the heterogeneities the corrections based on the modified power law method were acceptable if the density and kerma ratios were taken into account. At the points lateral to the heterogeneity the dose corrections based on the Equivalent SAR method were more appropriate. The effect of the heterogeneities on the gamma component was evident for B110, B100 and AVBRIII materials. The latter increased the gamma dose at locations behind and lateral to it, while the bone substitutes reduced the gamma dose to the points behind the inhomogeneities compared to the gamma dose measured in homogeneous phantom.