

Application of EGS4 Code to Evaluation of Specific Absorbed Fractions
and S Values for Internal Dosimetry

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The EGS4 code was used for evaluating the absorbed fraction per unit mass of the target organ –specific absorbed fraction (SAF)– and the mean absorbed dose to the target organ per unit cumulated activity in the source organ (S value) for internal dosimetry. The SAFs and S values were evaluated on a mathematical phantom (MIRD 5 type phantom) and Japanese adult voxel phantoms (Otoko and Onago phantoms) developed at the Japan Atomic Energy Research Institute (JAERI). The evaluated SAFs and S values were compared with several published data in order to demonstrate the use of the EGS4 code for the internal dosimetry and investigate the influence of certain parameters, such as the organ masses, on SAFs and S values. It was demonstrated that the EGS4 code is useful in the evaluation of the SAFs and S values for the internal dosimetry. It was also found that the SAFs and S values for organ self-absorption depend on the organ masses and would be affected by differences in the structure of the human body.