

**DEVELOPMENT OF A CALORIMETRIC SYSTEM FOR ELECTRON BEAM
DOSIMETRY IN RADIATION PROCESSING**

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A calorimetric system for electron beam dosimetry in radiation processing was developed. The system is composed of a graphite core calorimeter, the temperature measuring and electrical calibrating instrumentation, a microcomputer, and the software for the system automation. The research was directed towards the optimization of the project parameters, the development of advanced methodologies for calibrating the temperature sensor, the determination of the thermal capacity as a function of the temperature, the measurement of the absorbed dose, and the development of the software needed for the system operation. The operating range extends from 0.1 kGy to 30 kGy. The uncertainty in the measurement of the absorbed dose was estimated to be $\pm 1.8\%$ at the 95% confidence level. Comparative tests of the absorbed dose measurements were made using the IPEN's electron accelerator. The obtained results showed an excellent agreement between the absorbed dose determined by the calorimeter and the absorbed dose calculated from the nominal power delivered by the accelerator.