ABSTRACT

An RTD is a temperature sensor which measures temperature using the principle that the resistance of a metal changes with temperature. In industrial environments and space, there are various kinds of charged particles. These charged particles interact with RTDs. Due to this interaction, the properties and behavior of RTDs are affected. Pure form of RTD, without any protective encapsulation is taken under consideration. RTDs with Nichrome wire (0.25mm diameter) are used as target objects. The bombardment of charged particles with RTDs was done using the pelletron accelerator. Pelletron accelerator is a type of electrostatic particle accelerator, which can accelerate protons and different ions through a very high potential. Highly accelerated charged particles were bombarded with RTDs. All the parameters and variables of pelletron accelerator were adjusted in such a manner that required energy of 2.83MeV obtained for the experimental work. At this energy level, different number of samples were exposed to the different number of dose levels. We concluded that by increasing the dose level of samples, the value of resistance is also increased. Thus the RTD should be re-calibrated to be give proper results.