IMPLANTATION OF NEW PRODUCTS AND SERVICES BY RADIATION PROCESSING

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In the Radiation Technology Center there are two Industrial Electron Beam Accelerators (97.5 kW and 37.5 kW) and two Cobalto-60 Irradiators (Gammacell and Panoramic) to find out the ideal processing dose.

In the last three years, the Electron Beam Accelerator of 97,5kW has worked 400 hours/year for R&D, ordinary services and to develop new products and services by radiation processing. The same has occurred with the Electron Beam Accelerator of 37,5kW (480 hours/year), the Gammacell Irradiator (4,655 hours/year) and the Panoramic Irradiator (1,850 hours/year).

The new products, which were processed by ionizing radiation in this period:

- Wares and electric cables (FIG.1);
- Polyethylene foams;
- Silicium semiconductors;
- Polyurethane foams;
- Shrinkable materials;
- PVC films; and
- Polymeric components of shoes.

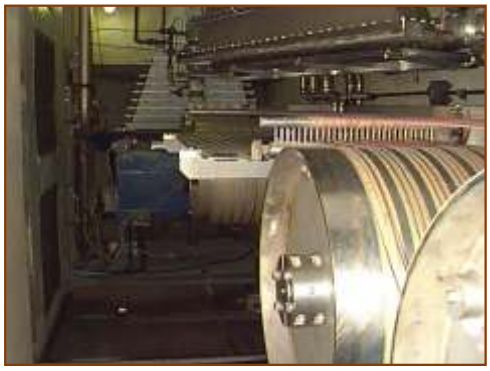

FIGURE 1 - Electron Beam Accelerator of 97.5kW.

Annually, 3,000 silicium semiconductors (FIG.2) were irradiated by Electron Beam Accelerator to improve the efficiency of the electronic components. Also, 35 km of polyethylene foam for shoes industries have been irradiated by electron beam (EB) per year, to promote crosslinking among the polymeric chains, increasing electrical, thermal, mechanical and chemical properties.

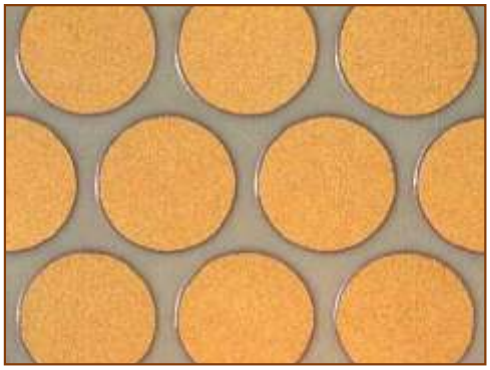

FIGURE 2 - Irradiation of Silicium Semiconductors by EB.

The modernization and implantation of new EB irradiation systems in the Center have increased the processing velocity by radiation, becoming the products more competitive in the market (FIG.3).

FIGURE 3 - Irradiation of polyethylene foams by EB.

In 30th August 2004 was opening the Multipurpose Irradiator, which will be used as a demonstration facility for manufacturers, who need an economic and logistic in house irradiation system alternative. Also, it will be useful for supporting the local scientific community on development of products and services using gamma radiation.