

Activation Products in Siemens Eclipse Cyclotron Shields

Siemens has compiled gamma spectroscopy data on the residual activity at two cyclotron facilities that were decommissioned. Using conservative assumptions, the total activity in an Eclipse Cyclotron shield set is approximately 3.18 GBq. The measurements were made months after the cyclotrons were shut down.

Table 1: Activation Products in Fixed Components

Element and Mass Number	Half-Life (years)	Maximum amount of activity, mCi, per cyclotron	Maximum amount of activity, MBq, per cyclotron
Sodium-22	2.60	0.048	1.776
Cobalt-60	5.27	0.776	28.712
Cesium-134	2.06	0.003	0.111
Europium-152	13.54	0.025	0.925
Antimony-124	0.165	85.18	3,151.66
Total Activity		86.032	3,183.184