

**An Irradiation Production Unit for Polymer Research**, J.I.M. BOTMAN, A.T.A.M. DERKSEN,  
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Netherlands - Electron irradiation is a well known  
method in polymer research for studying polymer  
structure changes. Using an existing 5 MeV linear  
accelerator a special irradiation facility has been built  
for this purpose. The monitored dose is variable  
between 5 and 300 kGy and may be evenly distributed  
over the sample, with a typical size of 10 x 10 x  
0.5 cm<sup>3</sup>. The linac macropulse frequency is in the  
range of 1 to 50 Hz and the maximum irradiation  
duration is in the order of minutes. Regarding sample  
conditions: the temperature is controlled between 20  
and 300 °C. There is an environment of pure nitrogen.  
The control system has been modernized using a PLC  
controller together with a visualisation program  
(Intouch®). Distributing the dose over the sample is  
realized either by sweeping the beam in the vertical  
direction using a bending magnet and moving the  
sample in the horizontal direction, or with the help of a  
permanent quadrupole magnet, inserted in the beam  
guiding system.