



P1020 & P1030 E-Beam Calibration Phantoms

Technical and Usage Information

Electron beam calibration phantoms are used for performing in-situ batch calibration of dosimeters in electron beam irradiation facilities. These phantoms have been designed and built to provide a consistent method of presenting dosimeters to a radiation source as detailed in ISO/ASTM 51261.

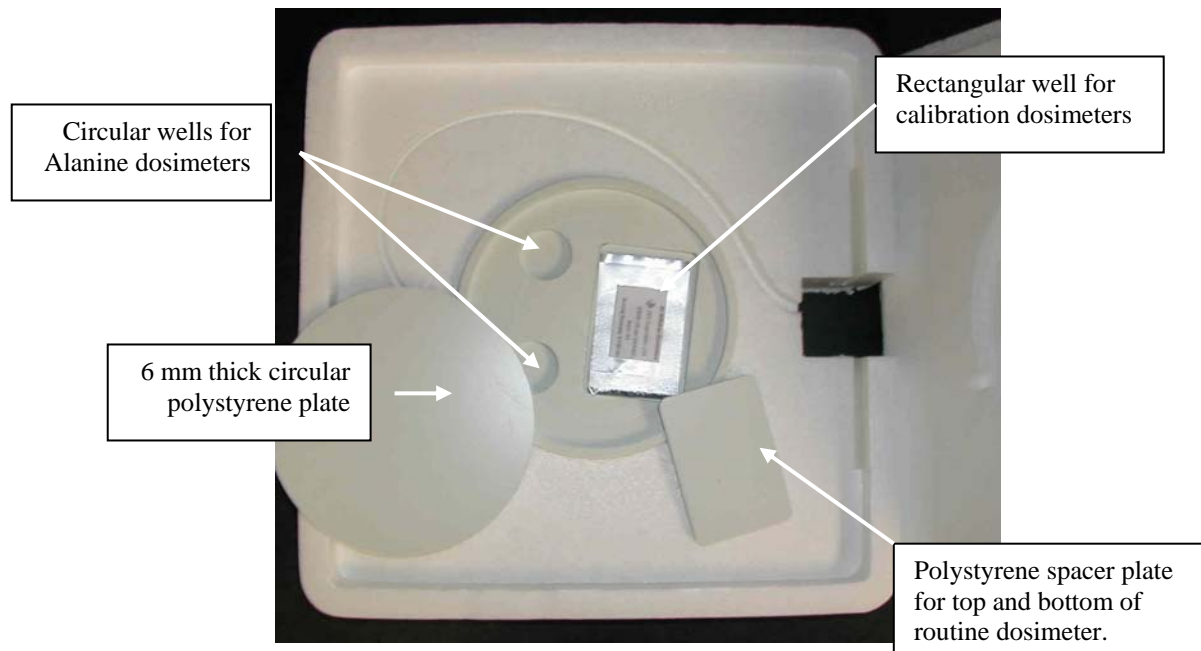
Description:

P1020 - 10 MeV electron beam calibration phantom

P1030 - 5 MeV electron beam calibration phantom

GEX Corporation recommends the utilization of NPL CIRM Report 29 as a guiding document on performing a calibration (see References).

Calibration phantom parts



Usage:

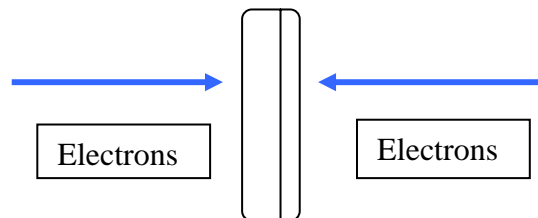
1. Remove the foam top of the calibration phantom, then remove the round 6 mm thick circular polystyrene plate if using the P1020 (the P1030 dose not have this plate).
2. Place the alanine transfer dosimeter into one of the circular wells.
3. Remove one of the rectangular spacer plates.
4. Record the calibration dosimeter numbers, the transfer dosimeter number and the target dose in the GEX Calibration Data Workbook or equivalent.
5. Place the packaged routine dosimeters into the rectangular well. Secure all dosimeters in place with tape so that they do not shift during irradiation.



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6. Place an irreversible temperature monitoring device (such as GEX item #P8003) in the calibration phantom between the alanine wells. Secure or tape it in place so that it does not shift during irradiation. **NOTE:** The adhesive on the P8003 Irreversible Temperature Label is permanent. Do not stick them to the alanine transfer dosimeter cases or the phantom.
7. Replace the top rectangular polystyrene spacer plate and tape it down.
8. Replace the round polystyrene plate if using the P1020, then attach the foam top.
9. The calibration dosimeters and the transfer dosimeter should be oriented perpendicular to the electron beam while in the irradiation process in order to achieve the highest dose uniformity.



10. Record the process geometry of the calibration phantom in the Calibration Data Workbook. Describe and state the density of any surrounding material, such as foam, simulated product, actual product and its geometry, etc.

References:

ISO/ASTM 51261 - Standard Guide for Selection and Calibration of Dosimetry Systems for Radiation Processing.

NPL Report CIRM 29; Guidelines for the Calibration of Dosimeters for Use in Radiation Processing.