P1020 & P1030 电子束校准模体

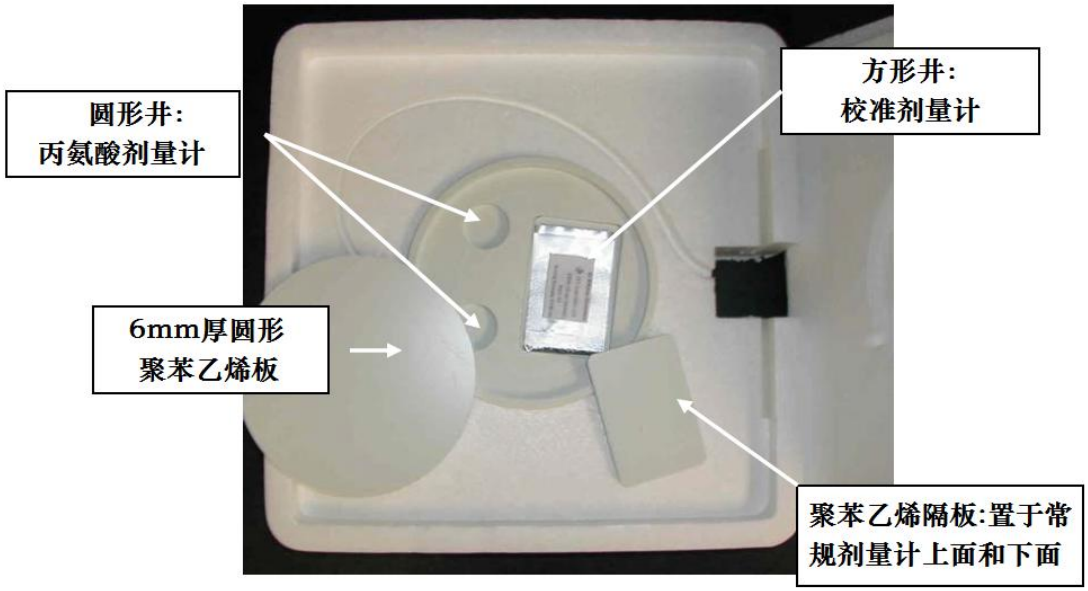
技术和使用信息

电子束校准模体用于执行剂量计在电子束辐照工厂的原位In-situ批校准。这些模体被设计并加工用于提供将剂量计呈现于辐射源中的一致的方法，正如ISO/ASTM 51261所详述。

描述：

P1020 - 10 MeV电子束校准模体
P1030 - 5 MeV电子束校准模体
GEX公司推荐使用NPL CIRM Report 29作为执行一次校准的指引文件（见参考文件）。

校准模体部件



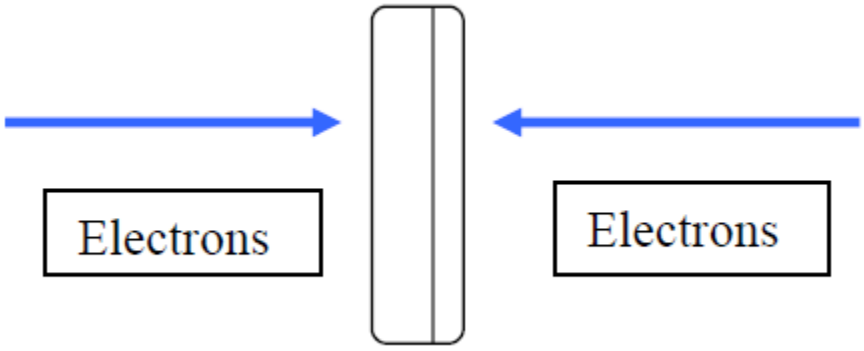
目的

这是一个确保常规剂量计和参考剂量计在辐照过程中接受相同剂量的固定装置。
注意:：模体设计本身不能保证剂量计接受相同的剂量。用户应该确认模体区域剂量分布的均匀性，且应该选择一个最优的模体再辐照区域的放置方式以保持该均匀性。

使用说明：

1. 移开校准模体的泡沫盖，然后取出6mm厚的圆形聚苯乙烯板，如果使用的是P1020（P1030没有这块板）
2. 将丙氨酸传递剂量计放入到当中的一个圆形井里。
3. 使用相同厚度的隔板上下将常规剂量计夹在中间，我们提供1mm，2mm，和3mm的隔板。
   A．选择尽可能厚的隔板，并使剂量计处于6mm的深度的中间；
   B．使用工厂包装的剂量计，必要时可修剪剂量计包装以不至过分拥挤。
4. 使用胶带以确保所有的剂量计处于原位而不至于在辐照过程中产生移位。
5. 放置一个不可逆的温度监视装置（譬如GEX的#P8003）于校准模体内并于两个丙氨酸剂量计圆井之间。固定或用胶带将其固定在原位以不至于在辐照过程中产生移位。
注意：TP8003不可逆温度标签上的粘合剂是耐久的，不要将其粘贴到丙氨酸传递剂量计或校准模体上。
6. 放置圆形聚苯乙烯板，如果使用的是P1020，然后盖上泡沫盖子。

7. 为了获得最高的剂量均匀度，在辐照过程中，校准剂量计和传递剂量计的朝向应该与电子束垂直。



参考资料：

ISO/ASTM 51261 – 用于辐照加工的剂量系统的选择与校准标准指引。
NPL Report CIRM 29：用于辐照加工的剂量计的校准指引。

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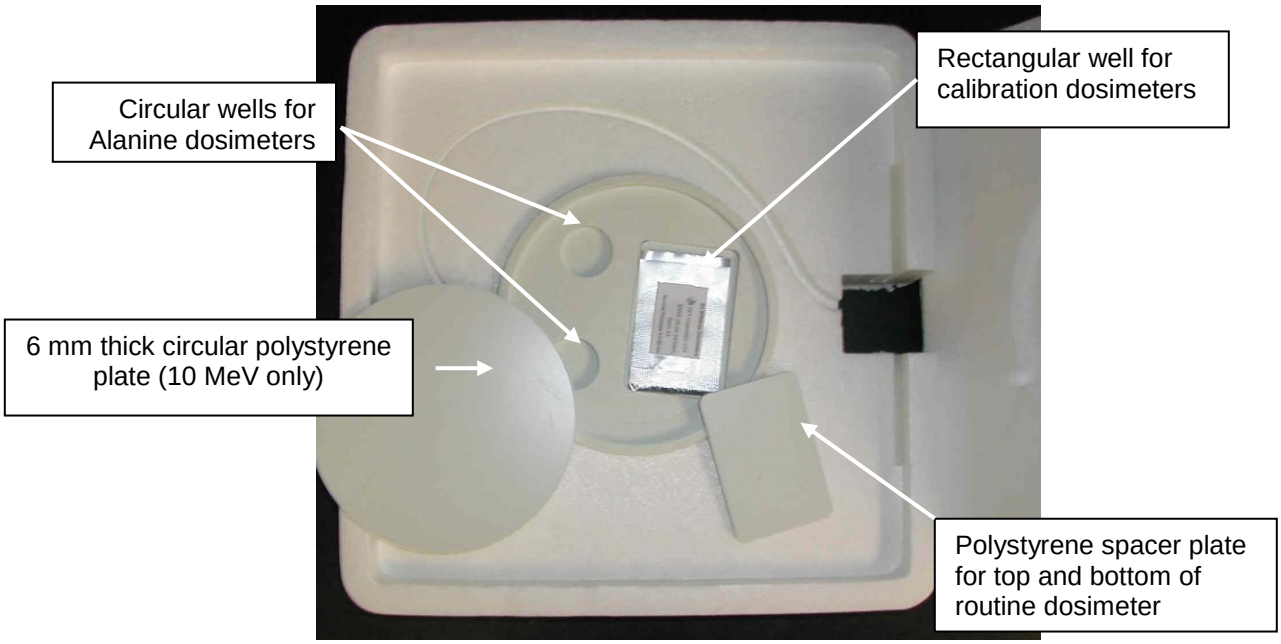
技术和使用信息

Electrom beam calibration phantoms are used for performing in-plant 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. GEX Corporation recommends the utilization of the references listed at the end of this document.

Description:

P1020 - 10 MeV electron beam calibration phantom
P1030 - 5 MeV electron beam calibration phantom



Purpose

A fixture that ensures the routine dosimeters and reference dosimeters receive the same dose during irradiation.
Note: The phantom design alone cannot ensure that the dosimeters receive the same dose. The user should confirm that the dose distribution over the area of the phantom is uniform, and should select an optimal arrangement of the phantom in the irradiation zone to maintain this uniformity.

Instructions for Use:

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. Sandwich routine dosimeters between the spacer plates using the same thickness spacer plates on both sides of the routine dosimeters. Plates of 1mm, 2mm, and 3mm are provided:

    a. Choose spacer plates as thick as possible while still keeping the midline of the dosimeter thickness on the midline of the 6mm well depth.

b. Use factory-packaged dosimeters and trim them if necessary to not overcrowd the routine dosimeter well with packaging material.

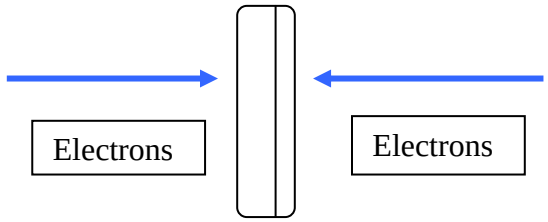
4. Secure all dosimeters in place with tape so that they do not shift during irradiation.

5. 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, rather keep the backer on and tape into place.

6. Replace the round polystyrene plate if using the P1020 securing it in place with tape, and then replace the foam top.

7. 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.



References:

ISO/ASTM 51261 - Standard Practice for Calibration of Routine Dosimetry Systems for Radiation Processing

NPL Report CIRM 29; Guidelines for the Calibration of Routine Dosimetry Systems for Use in Radiation Processing