DS20 - Panoramic Irradiator

Overview

The DS20 calibrator is a complete system for irradiating personnel dosimeter badges with gamma radiation. Dosimeters are placed on a circular table that rotates during irradiation providing excellent field uniformity. The source moves up from the shielded storage position to the exposed position to provide a full 360° uniform irradiation field. The dosimeter calibrator consists of up to seven sources, a motorized dosimeter table, a pneumatically operated source holder, shielding, a safety interlock system, and a system control panel.

Advantages

- Lowest cost option for total dose radiation calibration of TLDs and EPDs.
- High throughput configuration.
- Highly reliable. Systems in the field have thousands of hours of use without failure.
- Easy to use with an intuitive operator interface.
- Excellent uniformity with rotating table.

Source Shield

The shield is a steel-encased lead cylinder that can range from 10 inches diameter and 12 inches tall to 20 inches in diameter and 30 inches tall, depending on the model selected. In all cases, with the sources in the storage position, radiation levels are less than 5 mR/h at 12 inches from the surface of the irradiator. In applications where the source activities are lower than the Type A quantities, the main shield may be used as a shipping container. It is designed to meet all DOT Type 7A requirements.

Radioactive Sources

- All the sources are doubly encapsulated, hermetically sealed, special form sources.
- Up to 2200 Ci of Cs-137
- Up to 50 Ci of Co-60

Safety System

The irradiator system incorporates many safety features to create a fail-safe system. Safety constraints have been applied to all components that involve source exposure. The safety interlock system must be fully satisfied before an exposure can occur and will immediately halt any exposure in process if they are broken. Status panels show radiation conditions at a glance. The entire system has been designed to meet or exceed guidelines and regulations found in ANSI Standards N43.3 and NCRP 88.

Control Panel Options (-E, -A)

The operator control has two versions: electronic, and computer based. The electronic controller (E) will move the source to the expose position with pushbutton controls. This control option allows the user to run indefinitely, or set the system to run a predefined time. The controller will shield the source when the preset timer expires. The computer control system (A) offers complete control of the irradiator including exposure rate calculation, decay corrections, one button set up of irradiator, control of the instrument table, and automated irradiator calibration.

Model DS20 Panoramic Irradiator

Standard Models

Model	Description	Weight	Max Activities
DS20-1	Single source, Rotating Table	900 lbs	50 Ci, Cs-137
DS20-1-Co	Single source, Fixed Room	3000 lbs	50 Ci, Co-60
DS20-R-1	Single source, Fixed Room	3000 lbs	50 Ci, Co-60
DS20-7C	Multi source, Fixed Room or Rotating Table	3000 lbs	2600 Ci, Cs-137 50 Ci, Co-60

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Turntable

A rotary turntable constructed from low density material provides racks for mounting dosimetry at 20 to 100 cm from the source in 10 cm increments. The turntable is motor driven at 3 RPM and can be turned on or off via the control panel.

Ancillary Equipment and Options

- Video monitors for instrument inspection and room security are available.
- Up to 7 sources are available to provide a full range of exposure rates.
- Last person out safety systems are used on irradiators with high exposure rates and are optional on other systems.

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