ANSTO manufactures and calibrates high-dose radiation dosimeters for use in monitoring doses in radiation processing applications. The dosimeter measurements are traceable to the Australian standard for absorbed dose.

General

ANSTO's dosimeters are calibrated in a cobalt-60 radiation field, in which the dose rate has been determined from reference dosimeter measurements made under similar conditions.

The reported uncertainty associated with an individual dosimeter reading includes both the uncertainty of calibration of the batch of dosimeters and the uncertainty due to variation within the batch.

This expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor obtained from the Student's *t*-distribution, providing a level of confidence of 95 %. The uncertainty evaluation has been carried out in accordance with the *ISO Guide to the Expression of Uncertainty in Measurement*.

ANSTO maintains a quality management system that follows international best practice for dosimetry (ISO 17025 and ISO/ASTM standards for dosimetry for radiation processing).

Contact Us

T: +61-2-9717 3441

E: GammaIrradiation@ansto.gov.au

Fricke Dosimetry

Dosimetric solutions are prepared by a method which closely follows ASTM E1026. Dosimeters are supplied in 5 ml plastic screw capped vials. The calibration of each batch is traceable to the Australian Standard for absorbed dose.

Calibrated dose range **50 – 350 Gy**

Due to short term stability of this dosimeter, this service is available only to customers in Australia and New Zealand.

Supply and Measurement

Minimum order 10 dosimeters. All dosimeters must be returned for measurement.

Includes report of results.

Supply only

Minimum order 16 dosimeters. All dosimeter vials must be returned after use.

Includes:

6 irradiated standards (2 at each dose point); 50, 200, 350 Gy.

Quantities and doses are negotiable.

Ceric Cerous Dosimetry

Dosimetric solutions are prepared by a method which closely follows ISO/ASTM 51205. Dosimeters are supplied in 2 ml borosilicate glass ampoules. The calibration of each batch is traceable to the Australian Standard for absorbed dose.

Calibrated dose ranges **0.5 – 5.0 kGy**

1 – 11 kGy

10 – 50 kGy

Supply and Measurement

Minimum order 6 dosimeters. All dosimeters must be returned for measurement.

Includes report of results.

Supply only

Minimum order 100 dosimeters. Maximum order negotiable.

Includes:

8 irradiated standards per 100 dosimeters (2 at each dose point);

Doses and quantities negotiable

Data set to convert potentiometric readings to dose.

Irradiated Standards

15 irradiated standards (3 at each dose point).

Doses and quantities negotiable

Data set to convert potentiometric readings to dose.

Irradiation of Dosimeters

At request, ANSTO can irradiate customer dosimeters in a calibrated Gammacell 220 cobalt-60 irradiator to specified doses. ANSTO's reference dosimeters (traceable to the Australian Standard for absorbed dose) would be used for quality assurance of dose delivery.

Pre-requisites

Dose range should be between 50 Gy and 50 kGy (other doses negotiable).

Each dosimeter must be no greater than 17 mm diameter or width.

Irradiation temperature will be between 15 °C and 35 °C (and will be reported).

Customer must specify

- Number of dosimeters (maximum 10 per dose point)
- Number of dose points
- Target doses

Includes report of results