

# Information Sheet

## Information about the Requirements relating to Source Leak Tests

Sealed radioactive sources must be leak tested periodically to ensure the integrity of their source encapsulations. The leak test protocols required differ depending on the source type and the environment in which the source is used.

While this information sheet provides some guidance in relation to source leak test requirements, the specific arrangements to be followed for each sealed source should be specified in the possession licensee's radiation safety and protection plan.

### Minimum requirements

Source leak tests are to be conducted in accordance with Annex A.3 of ISO9978 *Radiation protection - Sealed radioactive sources - Leakage test methods* by a person who is appropriately trained and competent. While there are several leakage test methods that may be used to check the integrity of a source encapsulation, a wipe test method is a simple and effective test method that can be used to satisfy the periodic testing requirements.

As a minimum, a source leak test is to be conducted as a precautionary measure when service maintenance is performed on equipment containing sealed radioactive sources (e.g. source changes or shutter maintenance) and after an incident.

The following provides guidance on the additional requirements for radioactive sources used in particular types of apparatus.

#### (a) Sources in industrial gauges

The nearest accessible part to the sealed radioactive source is to be leak tested at least once every 12 months.

This requirement does not apply to sources which are doubly encapsulated, are in a stable physical and chemical form (e.g. ceramic) and are within their recommended working life, unless they are mounted in an acidic environment, or in proximity to PVC or other material able to produce acids by radiolytic action. In such circumstances, the nearest accessible part to the sealed radioactive source is to be leak tested at least once every 12 months.

#### (b) Sources in borehole logging equipment

- (i) The nearest accessible part to the sealed radioactive source is to be leak tested at least once every 12 months.
- (ii) Radioactive sources are to be removed from their holders and leak tested at least once every 5 years (Note: This should only happen for sources that have not been hermetically sealed into sondes, e.g. for oil well logging sources where the encapsulated source itself is routinely handled).

**(c) Portable moisture/density gauges**

The nearest accessible parts to the sealed radioactive sources are to be leak tested at least once every 5 years.

**(d) Lightly encapsulated sources**

- (i) Sealed radioactive sources in handheld, benchtop, or in-stream analysers are to be leak tested on the nearest accessible part to the sources at least once every 12 months.
- (ii) Licensable ion generators, static eliminators, and serviceable ionisation chamber smoke detectors are to be leak tested on the nearest accessible part to the source (not the actual source as this may cause damage) at least once every 12 months.

**(e) Sources used for educational or experimental purposes**

Radioactive sources (preferably the actual source capsule) used for educational or experimental purposes are to be leak tested once every 12 months.

## Enquiries

For further information, please contact the Radiation Health, Health Protection Unit of the Department of Health. The contact details for Radiation Health are:

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