

BS ISO 8769:2010



BSI Standards Publication

Reference sources — Calibration of surface contamination monitors — Alpha-, beta- and photon emitters

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National foreword

This British Standard is the UK implementation of ISO 8769:2010.

The UK participation in its preparation was entrusted to Technical Committee NCE/2, Radiation protection and measurement.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Reference sources — Calibration of surface contamination monitors — Alpha-, beta- and photon emitters

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de surface — Émetteurs alpha, bêta et photoniques*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8769 was prepared by Technical Committee ISO/TC 85, *Nuclear energy*, Subcommittee SC 2, *Radiation protection*.

This second edition cancels and replaces the first edition (ISO 8769:1988) and the first edition of ISO 8769-2:1996, which have been technically revised.

Introduction

Radioactive contamination of surfaces can result from spilling, splashing or leakage from unsealed sources, or breakage or loss of integrity of sealed sources and may give rise to the following health hazards:

- a) external exposure to parts of the body in proximity to the surface;
- b) inhalation, ingestion or entry into the body through wounds, of radioactive material released from the surface.

The need for effective monitoring of surface contamination has long been recognised, see References [1] and [2]. Surface contamination is quantified in terms of activity per unit area, the quantity which is normally used to specify “derived limits”, i.e. maximum limits of surface contamination. These limits are based on radiological protection considerations and have been derived from the dose equivalent or intake limits recommended by the International Commission on Radiological Protection (ICRP), see References [3] and [4]. Derived limits are incorporated into numerous national and international regulatory documents which relate specifically to surface contamination monitoring.

The requirement for this International Standard originated from the need for standard calibration sources in those International Standards dealing with the calibration of surface contamination monitors.

While regulatory documents refer to surface contamination in terms of activity per unit area, the response of monitoring instruments is related directly to the radiation emitted from the surface rather than to the activity contained upon or within the surface. Due to variations in the absorptive and scattering properties of real surfaces, it cannot be assumed, in general, that there is a simple, known relationship between surface emission rate and activity. Thus there emerges a clear need for calibration sources that are specified primarily in terms of surface emission rate as well as activity. Traceability of calibration sources to international or national standards is established by a system of reference transfer instruments.

