



NSAI
Standards

Irish Standard
I.S. EN ISO 18589-2:2017

Measurement of radioactivity in the environment - Soil - Part 2: Guidance for the selection of the sampling strategy, sampling and pre-treatment of samples (ISO 18589-2:2015)

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

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National Foreword

I.S. EN ISO 18589-2:2017 is the adopted Irish version of the European Document EN ISO 18589-2:2017, Measurement of radioactivity in the environment - Soil - Part 2: Guidance for the selection of the sampling strategy, sampling and pre-treatment of samples (ISO 18589-2:2015)

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 18589-2

October 2017

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English Version

**Measurement of radioactivity in the environment - Soil -
Part 2: Guidance for the selection of the sampling strategy,
sampling and pre-treatment of samples (ISO 18589-
2:2015)**

Mesurage de la radioactivité dans l'environnement -
Sol - Partie 2: Lignes directrices pour la sélection de la
stratégie d'échantillonnage, l'échantillonnage et le
prétraitement des échantillons (ISO 18589-2:2015)

Ermittlung der Radioaktivität in der Umwelt -
Erdboden - Teil 2: Leitlinie für die Auswahl der
Probenahmestrategie, Probenahme und
Vorbehandlung der Proben (ISO 18589-2:2015)

This European Standard was approved by CEN on 13 September 2017.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of ISO 18589-2:2015 has been prepared by Technical Committee ISO/TC 85 “Nuclear energy, nuclear technologies, and radiological protection” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 18589-2:2017 by Technical Committee CEN/TC 430 “Nuclear energy, nuclear technologies, and radiological protection” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

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

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Endorsement notice

The text of ISO 18589-2:2015 has been approved by CEN as EN ISO 18589-2:2017 without any modification.

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INTERNATIONAL STANDARD

**ISO
18589-2**

Second edition
2015-02-01

Measurement of radioactivity in the environment — Soil —

Part 2: Guidance for the selection of the sampling strategy, sampling and pre- treatment of samples

Mesurage de la radioactivité dans l'environnement — Sol —

*Partie 2: Lignes directrices pour la sélection de la stratégie
d'échantillonnage, l'échantillonnage et le prétraitement des échantillons*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 2, *Radiological protection*.

This second edition cancels and replaces the first edition (ISO 18589-2:2007), which has been technically revised.

ISO 18589 consists of the following parts, under the general title *Measurement of radioactivity in the environment — Soil*:

- *Part 1: General guidelines and definitions*
- *Part 2: Guidance for the selection of the sampling strategy, sampling and pre-treatment of samples*
- *Part 3: Test method for gamma-emitting radionuclides using gamma ray spectrometry*
- *Part 4: Measurement of plutonium isotopes (plutonium 238 and plutonium 239+240) by alpha spectrometry*
- *Part 5: Measurement of strontium 90*
- *Part 6: Measurement of gross alpha and gross beta activities*
- *Part 7: In situ measurement of gamma-emitting radionuclides*

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Introduction

This International Standard is published in several parts to be used jointly or separately according to needs. ISO 18589-1 to ISO 18589-6 concerning the measurements of radioactivity in the soil, have been prepared simultaneously. These parts are complementary and are addressed to those responsible for determining the radioactivity present in soils. The first two parts are general in nature. ISO 18589-3 to ISO 18589-5 deal with radionuclide-specific measurements and ISO 18589-6 deals with non-specific measurements of gross alpha or gross beta activities. ISO 18589-7 deals with the measurement of gamma emitters radionuclides using *in situ* spectrometry.

Additional parts can be added to ISO 18589 in the future if the standardization of the measurement of other radionuclides becomes necessary.

Measurement of radioactivity in the environment — Soil —

Part 2:

Guidance for the selection of the sampling strategy, sampling and pre-treatment of samples

1 Scope

This part of ISO 18589 specifies the general requirements, based on ISO 11074 and ISO/IEC 17025, for all steps in the planning (desk study and area reconnaissance) of the sampling and the preparation of samples for testing. It includes the selection of the sampling strategy, the outline of the sampling plan, the presentation of general sampling methods and equipment, as well as the methodology of the pre-treatment of samples adapted to the measurements of the activity of radionuclides in soil.

This part of ISO 18589 is addressed to the people responsible for determining the radioactivity present in soil for the purpose of radiation protection. It is applicable to soil from gardens, farmland, urban, or industrial sites, as well as soil not affected by human activities.

This part of ISO 18589 is applicable to all laboratories regardless of the number of personnel or the range of the testing performed. When a laboratory does not undertake one or more of the activities covered by this part of ISO 18589, such as planning, sampling, or testing, the corresponding requirements do not apply.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 31-9, *Quantities and units — Part 9: Atomic and nuclear physics*

ISO 11074, *Soil quality — Vocabulary*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 18589-1, *Measurement of radioactivity in the environment — Soil — Part 1: General guidelines and definitions*

3 Terms, definitions, and symbols

For the purposes of this document, the terms, definitions, and symbols given in ISO 31-9, ISO 18589-1, ISO 11074, and the following apply.

e	thickness of the layer sampled
m_{ss}	wet mass of the sorted sample
m'_{ss}	wet mass of a subsample of the sorted sample
m_{ts}	dry mass of the test sample
a	activity per unit of mass of the test sample
A_S	activity per unit area

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