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Third edition
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Soil quality — Determination of the effects of pollutants on soil flora —

Part 2:

Effects of contaminated soil on the emergence and early growth of higher plants

Qualité du sol — Détermination des effets des polluants sur la flore du sol —

Partie 2: Effets des sols contaminés sur l'émergence et la croissance des végétaux supérieurs



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 11269-2 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological methods*.

This third edition cancels and replaces the second edition (ISO 11269-2:2005), which has been technically revised.

ISO 11269 consists of the following parts, under the general title *Soil quality — Determination of the effects of pollutants on soil flora*:

- *Part 1: Method for the measurement of inhibition of root growth*
- *Part 2: Effects of contaminated soil on the emergence and early growth of higher plants*

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Introduction

This part of ISO 11269 describes a procedure for evaluating the quality of soils of different origin carrying unknown contaminations. The evaluation of the effects on plant growth is based on emergence and inhibitory effects on early growth of at least two species of higher plants. Guidance for assessing potential effects of substances on seedling emergence and growth is given in OECD Guideline 208^[14].

This part of ISO 11269 refers closely to ISO 22030 and is based on:

- a) results from the German research project "Entwicklung eines innovativen und technischen Instrumentariums zur Optimierung der ökotoxikologischen Bewertung von Böden im Hinblick auf Sanierungsziele und Schutzerfordernisse";
- b) discussions within the joint project "Ecotoxicological Test Batteries" forming part of the BMBF Joint Research Group "Processes for the Bioremediation of Soil"^[23];
- c) results from the BMBF Joint Research Group ERNTE "Erprobung und Vorbereitung einer praktischen Nutzung ökotoxikologischer Testsysteme"^[17];
- d) ring-test results of "Ecotoxicological Characterisation of Waste — Results and Experiences from an International Ring Test"^[8].

Plant growth can be influenced strongly by soil properties such as texture, pH or levels of nutrients. When testing natural soils either reference soils (uncontaminated soils with the same properties as the test soil) or standard soils are used as mixing and control substrate. In the latter case, variations in plant growth can result from either soil contaminants or differences in soil properties like nutrients and texture. Therefore, results from soil testing can less easily be interpreted than results from testing of chemicals .