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STN	**Kvalita pôdy** **Postup k hodnoteniu ekologického rizika kontaminácie pôdy špecifického pre danú lokalitu (TRIAD prístup kvality pôdy) (ISO 19204: 2017)**	**STN** **EN ISO 19204** 46 5138

Soil quality - Procedure for site-specific ecological risk assessment of soil contamination (soil quality TRIAD approach) (ISO 19204:2017)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/22

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN ISO 19204

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English Version

Soil quality - Procedure for site-specific ecological risk assessment of soil contamination (soil quality TRIAD approach) (ISO 19204:2017)

Qualité du sol - Procédure d'évaluation des risques écologiques spécifiques au site de la contamination des sols (approche TRIADE de la qualité du sol) (ISO 19204:2017)

Bodenbeschaffenheit - Vorgehensweise zur standortbezogenen ökologischen Risikobewertung von Bodenverunreinigungen (TRIAD-Ansatz zur Bewertung der Bodenbeschaffenheit) (ISO 19204:2017)

This European Standard was approved by CEN on 9 October 2022.

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European foreword

The text of ISO 19204:2017 has been prepared by Technical Committee ISO/TC 190 "Soil quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 19204:2022 by Technical Committee CEN/TC 444 "Environmental characterization of solid matrices" the secretariat of which is held by NEN.

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INTERNATIONAL STANDARD

ISO 19204

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Soil quality — Procedure for site-specific ecological risk assessment of soil contamination (soil quality TRIAD approach)

Qualité du sol — Procédure d'évaluation des risques écologiques spécifiques au site de la contamination des sols (approche TRIADE de la qualité du sol)

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Foreword

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The committee responsible for this document is ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Soil and site assessment*.

Introduction

This document is set up to ensure the quality of the site-specific ecological risk assessment of soil contamination. This process was described previously in a report by the Dutch PGBO (Integrated Soil Research Programme Agency), continued in the current SKB (Foundation for Soil Knowledge Development and Transfer)[69]. The present document is based on these Dutch reports but has been shortened in order to increase its general applicability. In addition, parts of the ecological risk assessment framework for contaminants in soil prepared by the British Environment Agency[21][22][23][24][25][26][27] were considered (this tiered framework does use the same three Lines of Evidence (LoE) as the TRIAD but not in parallel but consecutively). Experiences from various other sources[29][30][68], in particular, a summary of a Danish study performed as part of the EU FP6 project Liberation[36], as well as a Danish report[35], were added.

The term TRIAD relates to the following three LoE's: chemistry, toxicology and ecology[10]. Originally, it was described as Sediment Quality TRIAD by Long and Chapman[38]. The TRIAD does not particularly consist of three lines of evidence (up to five have been proposed[11]) but in specific situations, two might be sufficient. Descriptions of the soil quality TRIAD approach in the context of soil contamination are given, for example, in References [36], [40], [55], [59], [60], [63], [69], [71] and [73]. It should be mentioned that the soil quality TRIAD is not only used in Central Europe but also in other regions of the world, for example, in Portugal[1], Italy[67] or Brazil[44]. These publications can be used as case studies for the application of the soil quality TRIAD.

NOTE Recently, the ecological risk assessment procedures in The Netherlands, Norway, Sweden and the United Kingdom were compared[35]. The basic ideas of the TRIAD approach [e.g. a tiered approach and the combination of information from different disciplines (chemistry, ecotoxicology, and ecology)] have been accepted in these countries. However, only in the United Kingdom[21][22][23][24][25][26][27] and The Netherlands[40][43][53][58][60][61][63] have detailed frameworks been developed. The overall structure of this document combines and modifies both national frameworks in order to provide guidance independently from the country or region where the site to be assessed is located. The terminology of this document does follow the approach described in the EU project Liberation[36].

INTERNATIONAL STANDARD ISO 19204:2017(E)

Soil quality — Procedure for site-specific ecological risk assessment of soil contamination (soil quality TRIAD approach)

1 Scope

This document describes in a general way the application of the soil quality TRIAD approach for the site-specific ecological risk assessment of contaminated soils. In detail, it presents in a transparent way three lines of evidence (chemistry, ecotoxicology and ecology) which together allow an efficient, ecologically robust but also practical risk assessment of contaminated soils. This procedure can also be applicable to other stress factors, such as acidification, soil compaction, salinization, loss of soil organic substance, and erosion. However, so far, no experience has been gained with these other applications. Therefore, this document focuses on soils contaminated by chemicals.

NOTE 1 This document focuses on ecological risk assessment. Thus, it does not cover human health end points.

In view of the nature of this document, the investigation procedure is described on a general level. It does not contain details of technical procedures for the actual assessment. However, this document includes references relating to technical standards (e.g. ISO 15799, ISO 17616) which are useful for the actual performance of the three lines of evidence.

In ecological risk assessment, the effects of soil contamination on the ecosystem are related to the intended land use and the requirements that this use sets for properly functioning soil. This document describes the basic steps relating to a coherent tool for a site-specific risk assessment with opportunities to work out site-specific details.

This document can also be used for the evaluation of clean-up operations, remediation processes or management measures (i.e. for the evaluation of the environmental quality after having performed such actions).

NOTE 2 This document starts when it has already been decided that an ecological risk assessment at a given site needs to be performed. In other words, the practical performance of the soil quality TRIAD and the evaluation of the individual test results will be described. Thus, nothing will be said about decisions whether (and if yes, how) the results of the assessment are included in soil management measures or not.

NOTE 3 The TRIAD approach can be used for different parts of the environment, but this document focuses mostly on the soil compartment. Comparable documents for other environmental compartments are intended to be prepared in addition (e.g. the terrestrial aboveground compartment) in order to perform a complete site assessment, based on the same principles and processes.

2 Normative references

There are no normative references in this document.

