SLOVENSKI STANDARD
SIST EN ISO 11504:2017

01-december-2017

Kakovost tal - Ocena vplivov tal, onesnaženih z ogljikovodiki iz nafte (ISO 11504:2017)

Soil quality - Assessment of impact from soil contaminated with petroleum hydrocarbons (ISO 11504:2017)

Bodenbeschaffenheit - Beurteilung der Wirkung von mit Mineralölkohlenwasserstoffen verunreinigten Böden (ISO 11504:2017)

Qualité du sol - Évaluation de l'impact du sol contaminé avec des hydrocarbures de pétrole (ISO 11504:2017)

Ta slovenski standard je istoveten z: **EN ISO 11504:2017**

ICS:

13.080.10	Kemijske značilnosti tal	Chemical characteristics of soils

SIST EN ISO 11504:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 11504

September 2017

ICS 13.080.10

English Version

Soil quality - Assessment of impact from soil contaminated with petroleum hydrocarbons (ISO 11504:2017)

Qualité du sol - Évaluation de l'impact du sol contaminé avec des hydrocarbures de pétrole (ISO 11504:2017)

Bodenbeschaffenheit - Beurteilung der Wirkung von mit Mineralölkohlenwasserstoffen verunreinigten Böden (ISO 11504:2017)

This European Standard was approved by CEN on 26 September 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword

This document (EN ISO 11504:2017) has been prepared by Technical Committee ISO/TC 190 “Soil quality” in collaboration with Technical Committee CEN/TC 345 “Characterization of soils” the secretariat of which is held by NEN.

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 March 2018 and conflicting national standards shall be withdrawn at the latest by March 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.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 11504:2017 has been approved by CEN as EN ISO 11504:2017 without any modification.

INTERNATIONAL STANDARD

ISO 11504

Second edition
2017-08

Soil quality — Assessment of impact from soil contaminated with petroleum hydrocarbons

Qualité du sol — Évaluation de l'impact du sol contaminé avec des hydrocarbures pétroliers

Reference number
ISO 11504:2017(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Soil and site assessment.*

This second edition cancels and replaces the first edition, which has been technically revised.

Introduction

Petroleum hydrocarbons (PHCs) are common environmental contaminants. They are components of crude oil and products derived from it and are consequently found on a variety of sites including refineries, sites where they are used as feedstock (e.g. for manufacture of plastics), manufactured gas production sites, sites where hydrocarbons are used as fuel or lubricants and retail service stations. They may also be present as a result of spills and leaks during transportation or related to vehicle accidents.

Petroleum hydrocarbons can present unacceptable risks to the health and safety of humans, ecological systems, surface water, groundwater resources and to structures and building materials. Measuring the total concentration of petroleum hydrocarbons (TPH) in soil (and pore water and pore gas) does not give a useful basis for the evaluation of the potential risks to man and the environment. The variety of physical-chemical properties, and thus differences in the migration and fate of individual compounds, and the toxicity and carcinogenicity of different fractions and compounds in oil products, need to be taken into account in human health and environmental risk assessments.

Only a limited number of individual compounds can be routinely identified and quantified. It is, consequently, important to adopt methods of analysis that provide information about the amount of different hydrocarbon fractions present, preferably distinguishing between aliphatic and aromatic fractions, and the concentrations of single compounds of particular concern with respect to the potential health and environmental risks that they pose.

Although most petroleum hydrocarbons found in soil are of anthropogenic nature, there are some natural sources of these materials and other organic substances (e.g. peat and coal). The analytical methods historically used for the measurement of total petroleum hydrocarbons (TPH) tend to measure natural materials as TPH. This issue will not be dealt with in this document, except to note that a method which is able to give a more precise determination of the petroleum hydrocarbons is less prone to giving results that can be misinterpreted and potentially lead to unnecessary or unsustainable remedial actions.

The purpose of this document is to give recommendations with respect to the choice of relevant fractions and individual compounds, and to give guidance on the appropriate use of the results. Decisions about which analytical methods to adopt are based primarily on the need to provide the right type and quality of data for use in risk assessments. This requires consideration of how the results of the analysis are most appropriately used in a risk assessment, e.g. how can the fractions be used in exposure models and assessments, and how sufficient it is to analyse soil or necessary to obtain related values in other media as well (pore water and pore gas).

There are five existing International Standards covering the analysis of the range of petroleum hydrocarbons of interest. ISO 16703, ISO 16558-1 and ISO/TS 16558-2 can be used to measure mineral oil (C10 to C40) and ISO 22155 or ISO 15009 to measure volatiles. However, methods need to be able to properly measure the fractions and compounds recommended for determination in this document. ISO/TC190 has thus developed standards for methods of analysis designed to be compatible with the recommendations provided in this document: ISO 16558-1, which describes a method for determination of aliphatic and aromatic fractions of volatile petroleum hydrocarbons, and ISO 16558-2, which describes a method for the determination of aliphatic and aromatic fractions of semi-volatile petroleum hydrocarbons.