

To: **National Brownfield Forum**

*Please feel free to pass on to any of your contacts who might be interested.*

## INTRODUCTION

*BSI EH4 Soil Quality* is the BSI technical committee responsible for the production of standards relating to soil quality including contaminated land and natural and near-natural sites (e.g. farm land). Standards cover sampling, chemical analysis, physical testing, biological testing, and soil and site assessment. EH4 also deals with standards for the analysis and testing of wastes, standards relating to soil and climate change, and ecosystem services.

*BSI EH4* shadows ISO (International Organization for Standardization) Technical Committee *TC 190-Soil Quality* and CEN *TC444-Environmental characterization of solid matrices*. CEN is the European standards organisation.

EH4 actively seeks to broaden its membership. The wider the membership, the greater the confidence that the standards produced are technically sound and known about by potential users from a wide variety of backgrounds. Participation in BSI, CEN and ISO committees can contribute to CPD. Contact the Committee Manager, Jessy Mathew ([jessy.mathew@bsigroup.com](mailto:jessy.mathew@bsigroup.com)) for more information.

*Very few new or revised standards have been published in the last few months although the number of projects continues to increase. The Covid situation has delayed or prevented validation trials for some analytical methods. Virtual meetings, whilst often increasing the number of participants, are often not as effective when a consensus must be reached about difficult technical issues.*

**Mike Smith**



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*Note: This is not necessarily a complete listing of on-going projects in ISO TC190 and CEN TC444. At any one time there are also likely to be a number of other chemical analytical, biological testing, geotechnical and ground engineering standards, progressing through the ISO/CEN/BS system.*

**ISO NWIP 8259 Soil quality — Bioaccessibility of organic and inorganic pollutants from contaminated soil and soil-like material**

This proposed new standard will be based on German standard DIN 19738 which has been validated by means of animal tests.

It differs from [BS] ISO 17924 in terms of application and methodology. The method described in the NWIP is not limited to inorganic pollutants but is also applicable for organic pollutants like PAHs or PCBs. The methodology differs in the use of milk powder and a single procedure passing through a gastric phase and an intestinal phase consecutively. The NWIP describes the process to be followed in detail including sample handling, chemical analysis and quality control. The method is proven to be effective and has been in use in Germany for more than 10 years and, thus, a large data set is available.

The Proposal is open for comment until **9 August** via the BSI commenting system at:

<http://standardsdevelopment.bsigroup.com/projects/9021-05641>

Any comments submitted via this route will be taken into account by EH4 before it decides on how to respond to the NWIP.

**ASBESTOS**

*ISO TC190/SC3 Chemical and physical characterization* and *CEN/TC 444/WG3* are both considering whether to produce standards related to determination of asbestos concentrations in soil materials including sampling and analysis. BSI EH4 has decided in principle to set up a specialist Sub-committee to enable those involved in current asbestos-related activities in the UK to better engage with this proposed CEN and ISO activity.

*CEN TC351-Construction products* (shadowed by BSI B557) held a webinar on asbestos in construction materials (this includes bulk materials such as aggregates from wastes) on 3 May. A second webinar was held on 14 June. This was dedicated to discussion and exchange of views, leading to recommendations to *CEN/TC 351* and its *WG5* on how to proceed with the *CEN/TS* on asbestos in construction products.

**ISO TC 190/WG3 - SOIL FUNCTIONS/ECOSYSTEM SERVICES**

The new ISO TC190 Working Group (ISO TC190/WG3) met for the first time in March. Two task groups have been set up: (1) definition and framework, and (2) soil functions/services and associated indicators/parameters. More UK experts are required to join the Working Group

BSI EH4 has decided in principle to set up a specialist Sub-committee to enable those involved in related activities in the UK to better engage the work of TC190/WG3.

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### **ISO 24212 REMEDIATION TECHNIQUES APPLIED AT CONTAMINATED SITES**

A meetings of ISO TC190 SC7/WG10 was held on June 2/3 to discuss the extensive comments received by ISO on CD 24212. BSI voted disapproval for the proposed standard going forward in its present form (a catalogue of techniques) but was alone in taking this position. BSI would prefer a document that concentrates on the principles that should govern selection of techniques with references to the extensive published information on individual techniques. The need for a second CD was accepted by the Convenor and the participants in the meeting although without endorsement of all of the UK's criticisms or comments on the overall approach. The Convenor will produce a revised, restructured and edited document to serve as a basis for further development of the standard by the Editorial Group which at present includes four participants from the UK (Simon Gomm, Paul Nathanail, Mike Smith & Geraint Williams) – more volunteers would be welcome. Overall, much more emphasis will be placed on opening clauses covering principles and general guidance including related to options appraisal thus largely addressing UK concerns about the original draft.

### **ISO 18400-301 Soil quality – Sampling - Sampling for volatiles and on site semi-quantitative determination in field investigations**

*ISO TC190 SC7/WG13 Soil quality – Sampling* held meetings in May to discuss comments on CD 18400-301.

ISO 18400-301 will not be adopted as a BS because it would clash with BS 10176. However, it is important for the UK because it is expected that ISO Soil Quality standards for determination of volatile organic compounds (e.g. ISO 22155) will be revised to say that sampling should be in accordance with ISO 18400-301. In the UK, this requirement will need to be interpreted (e.g. via a national foreword) to refer to BS 10176.

The UK (and also Germany) had voted against proceeding to a DIS and recommended that second CD should be produced in view of the large number of comments on the document and further consideration needed of the basic approach. However, it was agreed to proceed to a DIS subject to review of a draft DIS by the WG before submission to ISO. This review is intended to take place during August with the DIS being submitted to ISO at the end of September. The DIS is expected to be circulated for comment at the end of 2021. A small editorial group was formed to prepare the draft DIS. It should be noted that without continued input from the UK, it is unlikely that a satisfactory standard will be produced.

### **FUTURE OF BS1377**

The laboratory soil tests in BS 1377:1990 Parts 2, 4, 5, 6, 7 and 8 are to be consolidated. A draft British Standard (*BS 1377-2 Methods of test for soils for civil engineering purposes, Part 2-Classification tests and determination of physical properties*) will be published for public comment in 2021.

An Amendment to *BS 1377-3:2018 Methods of test for soils for civil engineering purposes. Chemical and electro-chemical testing* has been published for public comment. The closing date for comments is 5 July 2021.

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**SOIL HUB**

The on-line hub for 'all things soil' ([uksoils](http://uksoils.org)) brings together the best available resources, including educational information and school activities, books and films, data and maps, plus guidance for farmers and land managers on how to support healthy soils. It is also a forum to enable the sharing of knowledge and experiences, encouraging people to link up and carry out initiatives to improve soil health and share locations around the country where soil health pioneers are trying out new technologies and management practices.

The hub is supported by a partnership comprising the UK Centre for Ecology & Hydrology (UKCEH), the Sustainable Soils Alliance, Earthwatch, the University of Sheffield, the British Soil Science Society and Scotland's Rural College (SRUC).

**Standards Relating to Investigation, Assessment, Remediation and Development of Potentially Contaminated and Contaminated Sites**

This AGS document provides key information required for a proper understanding and use Standard Guidance documents and Standard Specifications. It also provides information about in which Standards guidance on various topics such as investigation, reporting and remediation can be found. It can be downloaded from:

<https://www.ags.org.uk/item/standards-relating-to-investigation-assessment-remediation-and-development-of-potentially-contaminated-and-contaminated-sites/>

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<b>Entries from before early March 2020</b>
<b>New or amended entries – Early March to 31 December 2020</b>
<b>New or amended entries – 1 January to 31 March 2021</b>
<b>New or amended entries – 1 -30 April 2021</b>
<b>New or amended entries – 1 -31 May 2021</b>
<b>New or amended entries – 1 – 9 July 2021</b>
<b>Published standards – 1 April to 9 July 2021</b>
<b>Published standards – 1 April to 9 July 2021</b>

*ISO terminology: NWIP = New Work Item Proposal, WD = Working Draft, CD = Committee Draft, DIS = Draft International Standard, FDIS = Final Draft International Standard.*

*CEN terminology: prEN =enquiry stage (equivalent of DIS), FprEN = for Final Vote (equivalent of FDIS)*

*Copies of draft standards are available from the representatives of organisations that are members of BSI Technical Committee EH4 (e.g. AGS, EIC, SCI). If you do not know who represents an organisation to which you belong, you need to ask the organisation – this is not information that BSI is permitted to supply.*

<b>RECENTLY PUBLISHED STANDARDS</b>		
<b>BS EN ISO 22282-4</b>	<b>Geotechnical investigation and testing – Geohydraulic testing – Part 4: Pumping tests</b>	<b>Published April 2021</b>

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<b>BSI PROJECTS</b>		
BS 1337-2	Will cover those tests in Parts 2-8 of BS 1377:1990 that have not been replaced by Parts 1 to 12 of BS EN ISO 17892 or BS 1377-3:2018.	Public consultation expected September/October 2021
BS 1337-3:2018 Amendment 1	Amendment to BS 1377-3:2018 Methods of test for soils for civil engineering purposes. Chemical and electro-chemical testing	Public consultation ended on 5 July 2021
PAS 128 (revision)	Underground utility detection, verification and location – Specification	Publication planned for October 2021
<b>DRAFT ISO/CEN GEOTECHNICAL STANDARDS</b>		
ISO 17892-12:2018/DAM1	Geotechnical investigation and testing – Laboratory testing of soil – Determination of liquid and plastic limits – AMENDMENT 1	Comment period ended 5 April 2021
NWIP EN ISO 18674-7	Geotechnical investigation and testing – Geotechnical monitoring by field instrumentation – Part 7: Measurement of strains: Strain gauges	Approved to proceed by ISO TC 182 & CEN TC351 in June 2021
NWIP EN ISO 18674-8	Geotechnical investigation and testing – Geotechnical monitoring by field instrumentation – Part 8: Measurement of forces: Load cells	Approved to proceed by ISO TC 182 & CEN TC351 in June 2021
BS EN ISO FDIS FprEN 22475-1	Geotechnical investigation and testing – Sampling of soil, rock and groundwater – Technical principles	Future subject to further debate
ISO DIS 22476-1	Geotechnical investigation and testing – Field testing – Part 1: Electrical cone and piezocone penetration test	Comment period ended on 7 July 2021
ISO FDIS 22476-4	Geotechnical investigation and testing – Field testing – Part 4: Prebored pressure test by Ménard procedure	Comment period ends 21 August 2021
ISO CD 24057	Array measurement of microtremors to estimate shear wave velocity profile	Comment period ended 8 March 2021

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<b>DRAFT ISO &amp; CEN STANDARDS ON SOIL &amp; SITE ASSESSMENT Etc.</b>		
ISO 12404 CEN FprEN 12404,	Soil & Waste - Selection & application of analytical screening methods for on-site use  (revision of BS EN ISO 12404: 2015 & BS EN 16123:2013)	<b>ISO 12404 published June</b> EN (and hence BS) expected September 2021
ISO CD 18400-301	Soil quality – Sampling - Sampling for volatiles and on site semi-quantitative determination in field investigations	Comment period on CD ended March 2021. Proceeding to DIS
ISO FDIS 23400	Guidelines for the determination of organic carbon and nitrogen stocks and their variations in mineral soil at plot scale	Comment period ends 27 July 2021
ISO CD 24212	Remediation techniques applied at contaminated sites	Comment period on CD ended March 2021. Second CD to be prepared.

<b>DRAFT ANALYTICAL AND BIOLOGICAL TESTING STANDARDS etc.</b>		
ISO CD 4974	Soil quality – Guidance on soil temperature measurement	Comment period ended 29 April 2021
ISO CD 5120	Soil quality – Determination of perchlorate in soil using liquid chromatography-mass spectrometry	Comment period ended 2 March 2021
ISO CD TS 5594	Guidance document on designing interlaboratory trial for validation of biotests	Comment period ended 7 June 2021
ISO FDIS 10390 CEN FprEN 10390	Soil, sludge and treated biowaste – Determination of pH <i>(will replace certain other ENs)</i>	Proceeding to publication
ISO CD 11267	Soil quality – Inhibition of reproduction of <i>Collemba (Folsomia candida)</i> by soil contamination <i>(will replace BS EN ISO 11267:2014)</i>	Comment period ends 28 August
ISO CD 11268-2  Revision of [BS] ISO 11268-2:2012	Soil quality – Effects of pollutants on earthworms – Part 2: Determination of effects on reproduction of <i>Eisenia fetida/Eisenia andrei</i>	Comment period ended 27 January 2021
ISO FDIS 11916-3	Soil quality – Determination of selected explosives and related compounds – Part 3: Method using liquid chromatography-tandem mass spectrometry (LC-MS/MS)	Comment period ends 23 July 2021
CEN FprEN 14735	Characterization of waste – Preparation of waste samples for ecotoxicity tests	Comment period ends 20 August 2021

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ISO FDIS 15192	Characterization of soil and waste – Determination of Chromium (VI) in solid material by alkaline digestion and ion chromatography with spectrophotometric detection	Comment period ended 11 May 2021
CEN FprEN 15216	Environmental matrices – Determination of total dissolved solids (TDS) in water and eluates – Complementary element	Comment period ended 31 May 2021
CEN FprEN 15935	Sludge, treated biowaste, soil and waste – Determination of loss on ignition	Comment period on FprEN ended 23 May
CEN prEN 15936	Sludge, treated biowaste, soil and waste – Determination of total organic carbon (TOC) by dry combustion	Proceeding to FprEN
CEN pr EN 16166	Sludge, treated biowaste, soil and sediments – Determination of adsorbed organically bound halogens (AOX)	Comment period ended 17 August 2020
CEN prEN 17503	Environmental solid matrices – Determination of polycyclic aromatic hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid chromatography (HPLC)	Proceeding to FprEN
CEN prEN 17505	Soil and waste characterization – Temperature dependent differentiation of total carbon (TOC400, ROC, TIC900)	Comment period ended 9 June 2020. Rejected by CEN TC444. 2 <sup>nd</sup> enquiry planned for 2021.
CEN prEN 17516	Waste – Characterization of granular solids with potential for use as construction material – Compliance leaching test – Up-flow percolation test	Enquiry on FprEN pending
ISO NP 22036	Soil treated biowaste and sludge – Determination of elements using inductively coupled plasma optical emission spectrometry (ICP-OES)	Subject to approval by CEN
ISO CD 23611-4	Soil quality - Sampling of soil invertebrates – Part 4: Sampling, extraction and identification of soil-inhabiting nematodes	Comment period ended 21 January 2021
ISO DIS 23646	Soil quality – Determination of organochlorine pesticides by gas chromatography with mass selective detection (GC-MS) and gas chromatography with electron–capture detection (GC-ECD)	Comment period ended 3 October 2020
ISO DIS 23992	Soil quality – Framework for the recording and monitoring of changes in dynamic soil properties	Comment period ends 19 July 2021.
ISO DIS 24032	Soil quality - In-situ caging of snails to assess bioaccumulation of contaminants	Comment period ended 10 January 2021

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<b>NEW WORK ITEM PROPOSALS</b> <b>SUBJECT TO APPROVAL BY CEN TC444 and/or ISO TC190</b>		
ISO CD DTS 29843-2	Soil quality – Determination of soil microbial biodiversity – Part 2: Method by phospholipid fatty acid analysis (PLFA) using the simple PLFA extraction method	Comment period ended 22 November 2020
CEN NWIP	Characterization of environmental solid matrices – Halogen and sulfur by oxidative pyrohydrolytic combustion followed by ion chromatography detection and complementary determination methods	<b>Project approved by CEN, June 2021</b>
CEN NWIP 444044	Characterization of waste - Determination of the content of elements and substances in waste	<b>Project approved by CEN, May 2021</b>
ISO NWIP XXXX	Environmental solid matrices – Determination of elemental composition by X-ray fluorescence spectrometry <i>Proposed merger of [BS] ISO 18227 and [BS] EN 15309</i>	Comment period ended 16 January 2021
CEN NWIP	Environmental characterization of leachates from waste and soil using reproductive and toxicological gene expression in <i>Daphnia magna</i>	<b>Approved March 2021</b>
ISO NWIP 7303	Soil quality – Simplified method for oral bioaccessibility of metal(loids) in soils <i>Will complement BS ISO 17924 – see also NWIP 8529</i>	Comment period ended 25 April 2021
ISO NWIP 8529	Soil quality – Bioaccessibility of organic and inorganic pollutants from contaminated soil and soil-like material  <i>Will be based on DIN 19738 and complement BS ISO 17924 – see also NWIP 7303</i>	Comment period ends 9 August 2021

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**Background**

*BSI EH4 Soil Quality* is the BSI technical committee responsible for the production of standards relating to soil quality including contaminated land and natural and near-natural sites (e.g. farm land). Standards cover sampling, chemical analysis, physical testing, biological testing, and soil and site assessment. EH4 also deals with standards for the analysis and testing of wastes.

*BSI EH4* shadows ISO (International Organization for Standardization) Technical Committee *TC 190 Soil Quality* and CEN TC444 (*Environmental characterization of solid matrices*). CEN is the European standards organisation. EH4 has recently assumed responsibility for European standards (ENs) for analysis and testing of wastes produced by CEN TC444.

EH4 is also responsible for BS10175 (investigation of contaminated sites), BS 8576 (ground gas investigations), BS8454 (protection of buildings against gas) and BS 1076 (soil sampling for VOC determination of VOCs).

There are about twenty organisations (e.g. trade bodies, learned societies, professional bodies, quasi-government bodies etc.) represented on the committee at present together with a handful of individual experts who represent the UK on various ISO and CEN Working Groups (e.g. Paul Nathanail, Mike Ramsey). To find out who represents a particular organisation, the organisation should be contacted.

Nominated representatives of member organisations receive copies of formal drafts of standards, known in the case of ISO as Committee Drafts (CDs), Draft International Standards (DISs) and Final Draft International Standards (FDISs); and in the case of BSI as Drafts for Public Comment. They also receive copies of published standards for personal use.

Those representing an organisation are expected to circulate papers to, and consult, those they represent. Draft standards can be posted on “members-only” sections of web-sites for downloading or can be e-mailed to all members of the organisation that is represented.

EH4 actively seeks to broaden its membership. The wider the membership of EH4, the greater the confidence there can be that the standards produced are technically sound and known about by potential users from a wide variety of backgrounds. It also increases the pool of people from which it might be possible to draw on from time to time to represent the UK in ISO and CEN Working Groups. BSI can nominate one or more experts to each of the numerous Working Groups in ISO TC190 and CEN TC444. Whilst experts will hopefully attend meetings of the WGs, in practice this is not always possible and participation is limited to receipt and review of papers. BSI makes a contribution towards the costs of UK experts attending ISO and CEN meetings.

Member organisations of EH4 include:

Association of Geotechnical and Geoenvironmental Specialists (AGS), British Society of Soil Science, Centre for Ecology & Hydrology, Chartered Institute of Environmental Health, Environment Agency, Environmental Industries Commission (EIC) , EIC Contaminated Land Working Group, Environmental Services Association, Institution of Environmental Sciences, Ministry of Defence, National House Building Council (NHBC), Royal Society of Biology, Society of Brownfield Risk Assessment (SOBRA), Society of Chemical Industry (SCI), the James Hutton Institute, University of Glasgow, Water UK, Yorkshire & Lincolnshire Pollution Advisory Group.

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