BUSINESS PLAN
CEN/TC 444
Test methods for environmental characterization of solid matrices

EXECUTIVE SUMMARY

Scope
Standardization of test methods for the environmental characterization of soil, solid and liquid waste, biowaste and sludge.

This covers:
- Digestion / extraction, chemical analysis, physical methods, quality assurance and quality control (laboratories);
- Where appropriate and decided by matrix specific environmental Technical Committees: leaching tests, screening methods, sample pretreatment, biological and microbiological analysis, reporting.

Excluded are:
- Sampling, assessment methods and vocabulary, which are covered by matrix specific environmental Technical Committees.

CEN/TC 444 test methods could also be applicable for environmental testing of other matrices and products. CEN/TC 444 operates in close co-operation with matrix specific environmental Technical Committees as described in Annex A 'Code of Practice' of this Business Plan, notably by inviting these TCs to investigate the possibility of developing multi-matrix standards.

NOTE 1 The list of concerned matrices should be amended when additional matrix specific Technical Committees closely cooperate with CEN/TC 444.

NOTE 2 CEN/TC 444 is a multi-matrix environmental TC. The structure is aimed to be open in such a way that when additional TCs start to cooperate, it can easily be adapted (see figure A.1).

Business Environment
Reliable data is used for decision making at various levels. Uniform and (European) standardized methods are the basis for obtaining reliable data. Environmental testing is a business which is more and more driven by European legislation. European standards establish close cooperation between public authorities and market operators by providing the technical instruments.
To create a level playing field for the stakeholders involved and to ensure protection of the environment, the development and maintenance of European testing standards is essential. Where possible multi-matrix standards will be developed to meet the client needs, facilitate efficient testing and obtain comparable data.

Benefits
a. Multi-matrix characterization methods
The users in the various environmental fields use - to a large extent - similar procedures for environmental characterization. The potential combination of available (test)methods across different environmental fields into standards that are applicable to a variety of matrices can therefore be beneficial; both in view of the standard development and maintenance (cost
reduction), as - more important - from the point of view of application of the standards. Consequently, CEN/TC 444 aims to provide common testing standards to be used on multiple environmental matrices. By bringing the analytical experts for the different matrices together in CEN/TC 444, the capacity of experts is used more efficiently. Multi-matrix methods fit with a growing tendency for harmonization of legislation, it creates a level playing field, enhances comparability of results and increases the transparency and uniformity in testing. A large number of multi-matrix standardized methods is already available.

b. Single matrix characterization methods
With the establishment of CEN/TC 444, experts from CEN/TC 292, CEN/TC 345 and the former CEN/TC 400 PC have continued their standardization efforts under CEN/TC 444. This expertise is consequently lost in those TCs. It is however acknowledged that there will always remain matrix-specific characterization methods. These single matrix methods can also be taken care of within CEN/TC 444 as to centralize all standardization activities for the environmental characterization for the matrices and methods as covered by the scope of CEN/TC 444.

Priorities
Prioritization of work within CEN/TC 444 is done by its members, wherein a certain level of autonomy is given to the Working Groups. Furthermore the development and revision of standardized methods for the implementation of relevant (EU) legislation has a priority. An additional priority is the harmonization of methods that are inherited from CEN/TC 292, CEN/TC 345 and the former CEN/TC 400 PC.
1 BUSINESS ENVIRONMENT OF THE CEN/TC

1.1 Description of the Business Environment
The following political, economic, technical, regulatory, legal, societal and/or international
dynamics describe the business environment of the industry sector, products, materials,
disciplines or practices related to the scope of this CEN/TC, and they may significantly
influence how the relevant standards development processes are conducted and the content
of the resulting standards.

1.1.1 Scope of CEN/TC 444
The general scope is to develop and maintain test methods for environmental
characterization of soil, solid and liquid waste, biowaste and sludge. CEN/TC 444 develops
and maintains both single matrix and multi-matrix standardized methods for the
environmental characterization of these matrices. Environmental matrices currently included
in the scope are (excavated) sediment, sludge, soil, biowaste and waste, but the scope can
be expanded to other matrices on request of the CEN/TC that is responsible for that matrix.
Cooperation with CEN/TC 308 is sought when relevant.

The environmental characterization can be divided in a number of topics. CEN/TC 444 will
deal with the topics that are (more or less) independent of the type of matrix under
investigation. Matrix specific topics will remain under the responsibility of the matrix specific
TC.

Figure 1 shows the division of topics covered by CEN/TC 444 and topics covered by the
existing matrix specific TCs that are cooperating with CEN/TC 444.

Figure 1 – Topics covered by CEN/TC 444 and topics covered by matrix specific TCs
1.1.2 Organisation and parties involved
CEN/TC 444 is chaired by Mr F.P.J. Lamé (the Netherlands). The secretariat is held by the Netherlands Standardization Institute (NEN) and secretary is Mr M.M. van Rijn (mm@nen.nl). The technical work and development of standards in CEN/TC 444 is carried out in Working Groups (WGs) covering different themes. Six Working Groups have been established under CEN/TC 444. These are:

- WG 1 'Leaching tests' convenor: Mr P. Hennebert (FR), secretariat by NEN
- WG 2 'Organic analysis' convenor: Mrs M-P Strub (FR), secretariat by AFNOR
- WG 3 'Inorganic analysis' convenor: Mr V. Linnemann (DE), secretariat by DIN
- WG 4 'Biological characterization' convenor: Mr P. Pandard (FR), secretariat by AFNOR
- WG 5 'Physical tests' convenor: tbc (DE), secretariat by DIN
- WG 6 'Cross cutting issues' convenor: Mr J-W. Hutter (NL), secretariat by NEN

In its activities, CEN/TC 444 aims to include representation of all stakeholder groups to participate in the standardization process:
- European and national governments;
- Industry;
- Public authorities;
- Commercial and public laboratories;
- Universities and research facilities;
- NGOs representing societal interests, including environmental and consumer organisations
- Consultancy.

Furthermore, it seeks to have active contribution from all CEN Member States.

1.1.3 Political and legal factors
European standardization enables the harmonization of methodology in Europe. A number of European standards that fall under the responsibility of CEN/TC 444 are listed in European and/or national legislation. These standards contribute to consistent implementation and enforcement of legislation.

The European Commission has acknowledged the important role of (environmental) standardization by asking CEN to develop a number of standards mandated by the European Commission. Relevant EC-mandates within the field of work of CEN/TC 444 can be found in Annex E.

Furthermore, CEN/TC 444 can initiate the development of a standard in anticipation of a future standardisation request, in order to support national and European policy makers by providing standards which can be referred to in legislation.

1.1.4 Technological developments
A key question for CEN/TC 444 is to identify and understand the stakeholders needs in terms of developments that lead to a request for new (or revision of existing) European standards. Besides standardization of methods for the different steps of the characterization process, technological developments in the field provide a basis for standardization initiatives.
1.1.5 Financial factors
Standardization is financed by the participating parties. Insufficient support to provide resources is considered as an indication of a lack of stakeholders needs for the development of standards on a particular topic. However, it should be noted that standardization in the environmental field is strongly driven by (European) legislation and is, to a significant level, dependent on funding from the Member Bodies on state level.

A specific and generally expensive part of the development of standards is validation. This is an important part of the standardization process and shall be an integral part of standards development within CEN/TC 444. For that purpose, CEN/TC 444 has adopted the CEN Guide 13 as a basis for its approach towards validation and in addition to that also adopted the outcome of a workshop which was organized by ISO/TC 190 ‘Soil quality’ in October 2014. More details are provided in Annex C.
Activities that may lead to a more accurate, faster and easier way to validate draft methods, are highly supported. CEN/TC 444 supports validation activities in conjunction with any need for pre-normative research to aid future improvement of test procedures.

1.1.6 Co-ordination with other committees/stakeholders
CEN/TCs, ISO/TCs and European organizations are invited to establish a liaison with CEN/TC 444 and to appoint a liaison officer.

The following persons are appointed to represent CEN/TC 444 in other groups:

<table>
<thead>
<tr>
<th>Committee</th>
<th>Liaison officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEN/TC 223 Soil improvers and growing media</td>
<td>Mr A. Baumgarten</td>
</tr>
<tr>
<td>CEN/TC 260 Fertilizers and liming materials</td>
<td>Mr A. Baumgarten</td>
</tr>
<tr>
<td>CEN/TC 292 Characterization of waste</td>
<td>Mr F. Lamé</td>
</tr>
<tr>
<td>CEN/TC 308 Characterization and management of sludge</td>
<td>--</td>
</tr>
<tr>
<td>CEN/TC 345 Characterization of soils</td>
<td>Mr F. Lamé</td>
</tr>
<tr>
<td>CEN/TC 351 Construction Products - Assessment of release of dangerous substances</td>
<td>Mr J. Bartels</td>
</tr>
<tr>
<td>CEN/TC 351/WG 5 Content and analysis</td>
<td>Mr J-W. Hutter</td>
</tr>
<tr>
<td>ISO/TC 190 Soil quality</td>
<td>Mr A. Paetz</td>
</tr>
<tr>
<td>ISO/TC 190/SC 3/WG 10 Screening methods</td>
<td>Mr H. Sakai</td>
</tr>
<tr>
<td>ISO/TC 275 Sludge recovery, recycling, treatment and disposal</td>
<td>Mr C. Thompson</td>
</tr>
</tbody>
</table>

The following Committees have nominated a liaison to follow the work of CEN/TC 444:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CEN/TC 223 Soil improvers and growing media</td>
<td>Mr A. Baumgarten</td>
</tr>
<tr>
<td>CEN/TC 230 Water analysis</td>
<td>Mr A. Baumgarten</td>
</tr>
<tr>
<td>CEN/TC 455 Plant biostimulants and agricultural micro-organisms</td>
<td>Mrs G. Herpers</td>
</tr>
</tbody>
</table>

Observer to CEN/TC 444

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Liaison officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOS (European Environmental Citizens Organisation for Standardisation)</td>
<td>Mrs I. Popescu</td>
</tr>
</tbody>
</table>
Other CEN/TCs, ISO/TCs and groups that may have an interest in the work of CEN/TC 444 have been identified:

- EC/DG Environment (ENV)
- EC/DG Research and Innovation (RTD)
- EC/DG Joint Research Centre (JRC)
- ANEC (European consumer voice in standardisation)
- ISO/TC 147 Water quality

If future participation of these or other groups is decided on, this will be formalized.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

Development of standards within CEN/TC 444 will result in common methodologies for environmental characterization and allows harmonization of methods on a European level. In addition, standardization will create a level playing field for the environmental assessment, comparability of data and transparency.

CEN/TC 444 supports national and European policy makers by developing standards that can be referred to in legislation. Furthermore, standards will be developed in response to a stakeholder's demand within the field of environmental characterization. Where feasible, action is taken to come to standards that cover multiple environmental matrices.

3 PARTICIPATION IN THE CEN/TC

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and to appoint experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible. To participate in the activities of CEN/TC 444, please contact the national standards organization in your country.

4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of the CEN/TC

The objective of CEN/TC 444 is to support (European) parties in environmental characterization by providing fit-for-purpose CEN standardized methods.

The objectives identified are:

1. To efficiently and effectively develop multi-matrix standards where possible and matrix specific standards where needed.
2. To co-ordinate the work programme in close liaison with the CEN/TCs active in the environmental field.
3. To co-ordinate the work programme in close liaison with ISO to avoid duplication of efforts and avoid possible conflicts.

4.2 Identified strategies to achieve the CEN/TCs defined objectives

The strategy of CEN/TC 444 is based on three pillars:

1. (Multi-matrix) standard development
2. Quality of standards
3. Implementation and communication on standards
(Multi-matrix) standard development: This concerns both the revision of existing standards to incorporate new insights as well as the development of new standards. Development and maintenance of standards, despite a preference for multi-matrix standards, can also be aimed at single matrix standards.

In order to meet the objectives of CEN/TC 444, standard development needs to be supported by national members and stakeholders. For that, three critical requirements need to be fulfilled in order to proceed with standard development.

1. presence of stakeholder needs
2. presence of relevant matrix specific TC support
3. presence of expertise and financial support

Quality of standards: quality aspects are important on two levels:

1. the level of the organization of documents: The coherence and coordination between the individual standards that form parts of the methodology in the full characterization cycle need to be ensured.
2. the level of performance of methods: a reliable indication of the performance of standardized test methods is an important quality aspect, especially when a method is used to fulfill legal requirements. Performance data need to be an integral part of standards describing measurement methodology.

Implementation and communication on standards:

The use of standards developed in CEN/TC 444 should be promoted. The benefits of a broad use of standards are manifold and include increased efficiency and comparability of data. The basis for an extensive use of standards is a broad stakeholder support. Furthermore, the use and implementation of standards can be enhanced by informing the relevant markets about the existence and advantages of European standards, for example through publication of articles, web-alerts and organization of workshops. This is to a large extent the responsibility of the NSB.

4.3 Environmental aspects

CEN/TC 444 is developing European Standards and other documents to investigate, characterize and monitor environmental parameters. A number of standards is being used to support (European or national) legislation and CEN/TC 444 therefore fully supports the idea of promoting environmentally friendly standards taking human health and safety issues into account including considering the effects on the global climate.

CEN/TC 444 supports the banning or replacement of harmful chemicals from test methods that cause negative effects on the environment, including climate change, where possible. CEN/TC 444 includes environmental aspects into the revision of existing European standards and bases this process on past as well as future applications of the standards.

5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME

- Resources and market support for standardization

As indicated in section 1.1.5, standardization should meet the requirement of the presence of sufficient stakeholders needs as well as the requirement that sufficient resources (financial means and expert participation) is available for the development of a standard.
Funding for validation
Validation of a test method is costly and often dependent on available funding for the necessary co-normative research.
Absence of validation of a particular method shall lead to the publication of a Technical Specification instead of a full standard (see Annex C).
ANNEX A: CODE OF PRACTICE: ON THE INTER-TC COOPERATION IN THE FIELD OF ENVIRONMENTAL STANDARDIZATION

A.1 Introduction
In 2015, CEN/TC 444 has been established (Decision BT C59/2015; CEN/TC 444 Document N01). With the establishment of this multi-matrix environmental TC, inter-TC cooperation needs specific attention.

CEN/TC 444 will obviously work in accordance with the CEN-rules. However, these rules provide insufficient guidance on the structural inter-TC cooperation as foreseen between TCs in the environmental field. This aspect is covered in this Code of Practice.

A.1.1 Organization
The inter-TC structure of CEN/TC 444 is depicted in Figure A.1.

Figure A.1 – Structure between the TCs in the environmental field

CEN/TC 444 provides service to the existing TCs, taking care of standardization on matrices and topics as mentioned in the scope (see 1.1.1).

The difference between a TC in the ‘core’ and ‘shell’ is based on the rate of participation. TCs that participate in the ‘core’ (currently CEN/TC 292 and CEN/TC 345) have transferred a whole package of standards to CEN/TC 444. With this the responsibility for maintenance and standards development for waste and soil test methods lays within CEN/TC 444. This was also the case for CEN/TC 400 PC which has transferred all its standards to CEN/TC 444 and subsequently has been disbanded.

For TCs in the ‘shell’ (currently CEN/TC 230, CEN/TC 308 and CEN/TC 351) the transferal of responsibilities is limited to individual standards, or the agreement to cooperate; decided upon by the ‘shell’ TC on a case by case / standard by standard basis.
All members/experts of the ‘core’ TCs involved in the topics covered by CEN/TC 444 have been invited to reallocate their activities. Now that all expertise is available in CEN/TC 444, CEN/TC 444 is able and equipped to develop and maintain both multi-matrix and single-matrix standards. The desirability and possibility of multi-matrix standardization will be assessed on a standard by standard basis in close cooperation between the ‘core’ and ‘shell’ TCs.

NOTE Figure A.1 gives the CEN/TCs that are somehow involved in the work of CEN/TC 444 through their scopes. Next to the CEN/TCs present in the figure also other CEN/TCs work on standardization of similar topics and could be involved or will coordinate with CEN/TC 444 on certain topics.

A.1.2 Status of this Code of Practice

From a practical point of view, this Code of Practice (Annex A) is a ‘living’ document under the responsibility of CEN/TC 444. Where necessary procedures will be integrated, adapted or removed based on practical experience.

A.2 Work processes

A.2.1 Analysis of the work processes

The following work processes are distinguished:

a. Development of a new standard
b. Maintenance of an existing standard

Both situations a and b can occur with the initiative coming from either CEN/TC 444 and/or the TCs in the core or shell. All potential situations are described in Figure A.2 wherein eight different situations are identified:

1. standard development of a single matrix standard by a shell TC
2. standard development of a multi-matrix standard by CEN/TC 444 (two or more TCs involved)
3. standard development of a single matrix standard by one of the core TCs
4. standard development of a multi-matrix standard by CEN/TC 444 (two or more TCs involved)
5. standard maintenance of a single matrix standard by a shell TC
6. standard maintenance of a multi-matrix standard by CEN/TC 444 (two or more TC involved)
7. standard maintenance of a single matrix standard by one of the new core TCs
8. standard maintenance of a multi-matrix standard by CEN/TC 444 (two or more TCs involved)

Whenever the initiative is limited to a single TC (situations 1, 3, 5 and 7), it is the normal standardization process which is therefore not further addressed in this CoP.

Apart from differences in the standardization work between standard development and maintenance, the similarities in the process are obvious (situations 1 to 4 and 5 to 8).

Transfer of the responsibility for a standard occurs in situations 2 and 6, when more TCs in the core and/or the shell need a specific standard.

The involvement of more than one TC occurs in situations 2, 4, 6 and 8 and good communication around the standardization process is consequently essential.

Based on the analysis depicted in Figure A.2 and only describing the elements that are different from the normal standardization work, two elements need attention in this CoP:

− **Transfer** of a standard from a single matrix TC towards CEN/TC 444.
− **Communication** associated to the multi-matrix standardization process.
Figure A.2 – Analysis of the work processes
A.2.2 Transfer of a standard

Transfer of standards will take place whenever a 'shell' TC or other TC decides to transfer a specific standard to CEN/TC 444. This could be in order to develop it into a multi-matrix standard, or that from the nature of the standard, the standard can best be hosted by CEN/TC 444. Transferal of a standard, either in the process of standard development or maintenance, implies the transferal of responsibilities. Close cooperation and good two-way communication are therefore essential in that process. When a TC transfers a package of standards it becomes a 'core' TC, while this will limit the scope of this new 'core' TC.

The decision on the transfer of an existing standard to CEN/TC 444 is taken by the matrix-oriented TC that is responsible for that standard. It is a stepwise process, wherein the original TC will take a decision under the condition that CEN/TC 444 will indeed take over the responsibility for that standard. Prior to such a decision CEN/TC 444 will seek advice of its WG that will become responsible for that standard.

In accepting the responsibility of a standard or active work item, CEN/TC 444 will respect the decisions taken on that standard or active work item of the CEN/TC from which the standard originates. CEN/TC 444 will ensure that the time schedule for an active work item as set by the CEN/TC that started the active work item, will be kept.

A.2.3 Communication

The standardization needs of the matrix-oriented TCs in the core and shell will be an essential determining factor for the work of CEN/TC 444 with respect to both standard development and maintenance. Consequently, well-organized two-way communication with both the core and shell will be a major factor for the success of CEN/TC 444 in its task to develop fit-for-purpose standards for all involved matrices.

Whenever a multi-matrix standard is developed or maintained, there will be open and detailed communication between CEN/TC 444 and the involved shell and core TCs in order to ensure that the standard is fit-for-purpose, fits within the set of standard of the matrix TC(s) and to ensure that when it comes to voting, the NSBs are sufficiently aware of its multi-matrix character.

More in general, communication with SABE and NSBs will also be an important issue. Apart from communication on the transfer, development and maintenance of specific standards, a Chairman’s meeting will be organised in conjunction with the meeting of CEN/TC 444 and is open to all participating TCs and on request as well for non-participating TCs.

A.2.4 Validation

Validation is an essential step in the development of standards and needs specific attention with respect to multi-matrix standards.

The CEN Guide 13 ‘Validation of environmental test methods’ and CEN/TS 16800 ‘Guideline for the validation of physic-chemical analytical methods’ (the scope of which is water, but its principle can be used broader, this document is currently in revision), provide a backbone for validation trials.

An essential element in the validation of a multi-matrix standard is the use of representative samples during the validation. In addition to the normal needs for representativeness for the validation of a single matrix standard, the validation of a multi-matrix standard also needs to cover the different matrices. Based on the results it will be decided for what matrices the validation is accepted. For more information on validation see Annex C.
A.3 Relationship to ISO work

A.3.1 General
The work in CEN is closely related to the ISO work. By the Vienna Agreement, CEN and ISO can decide to work together, drafting EN ISO standards. Collaboration between CEN and ISO reduces standardization costs (no double work) and enlarges the field of application of the standards (worldwide recognition instead of only European recognition). Consequently the co-operation with associated ISO/TCs is also essential in the new structure. See also Annex B: Practical guidance for the cooperation between CEN/TC 444 and ISO in the development and maintenance of standards.

A.3.2 Practical

Soil
ISO/TC 190 and CEN/TC 345 are closely related. ISO/TC 190 is allowed by ISO/CS to widen the scope of individual standards beyond soil and soil material (including excavated sediments), in order to allow the development of multi-matrix EN ISO standards in the environmental field.

Currently there is an active co-operation between CEN/TC 345, CEN/TC 444 and ISO/TC 190. In general ISO standards for soil (developed by ISO/TC 190), which have been taken over as EN iso standards and are within the responsibility of CEN/TC 444, will be maintained by ISO/TC 190. Co-operation during any revision of these standards will be based on the Vienna Agreement with ISO lead. However - due to for example broadening of the scope to other matrices – CEN/TC 444 can request to ISO/TC 190 to take over the responsibility for the revision of an EN ISO standard. Such a decision shall always be taken on an individual basis and has to be decided by both CEN/TC 444 and ISO/TC 190.

Sludge
In any case where sludge is part of the scope of an EN ISO standard, ISO/TC 275 will be involved.

Waste
As there is currently no ISO/TC on waste, EN ISO standards for soil and waste can be developed and maintained by co-operation between CEN/TC 444 and ISO/TC 190.

Other
When more CEN/TCs decide to join in the core and/or shell the implications on ISO-level need to be reviewed.

In the case that an ISO standard within the scope of CEN/TC 444 is proposed to be accepted as an EN ISO standard by UAP or parallel voting, and there is no EN standard available, this will in co-operation with CEN/TC 444, lead to a single matrix EN ISO standard under the responsibility of the concerned ISO/TC.
When an EN multi-matrix standard is proposed for transposition to ISO, communication with relevant ISO/TCs is undertaken in order to maintain the multi-matrix character of the standard.

A.4 Miscellaneous

A.4.2 CEN/TCs interested in participation
Participation by other CEN/TCs to the core or shell is stimulated and will be possible at any given time. The inclusion of other TCs in the core will be discussed and decided upon in the group of core TCs and discussed in the Chairmen’s meeting (A.4.5).
A.4.3 Chairmen’s meeting

The Chairmen’s meeting will have an important role in the steering and monitoring of the process of the inter-TC communication and cooperation. The Chairmen’s meeting will deal with the practical and procedural aspects of the inter-TC cooperation and is used as an advisory board for the chairman and secretary of CEN/TC 444.

The participants to the chairman meeting are convenors and secretaries of CEN/TC 444/WGs and Chairmen and/or Secretaries of other interested TCs.

It is envisaged that the Chairmen’s meeting will play an essential role in the communication between the TCs in the core and shell. The core TCs and CEN/TC 444/WGs shall participate in these meetings. TCs in the shell are invited to participate, share information and give advice.
ANNEX B: PRACTICAL GUIDANCE FOR THE COOPERATION BETWEEN CEN/TC 444 AND ISO IN THE DEVELOPMENT AND MAINTENANCE OF STANDARDS

B.1 SUMMARY

This annex provides a guideline for CEN/TC 444 on how cooperation with ISO committees will be organized in case of new Standard development and revision of existing Standards.

This document describes in detail various situations that can occur in the development and maintenance of Standards. However in day-to-day practice, good cooperation between CEN/TC 444, ISO/TC 190 and ISO/TC 275 (and possibly other ISO/TCs) depends on communication and the willingness to actively inform each other and work together.

With this Annex B CEN/TC 444, with the contribution of ISO/TC 190 and ISO/TC 275, has set-up a guideline for efficient and consistent standardization for environmental characterization between CEN and ISO. The general points for cooperation as described in the rest of the Annex B are:

- The preference to the development of EN-ISO Standards where possible (beyond pure ISO or EN Standards).
- For this purpose, always consult well in time with each other when there is a need within either CEN or ISO for the development or revision of a Standard so that the other party (CEN or ISO) can decide in time on cooperation for the establishment of an EN-ISO.
- From the moment cooperation starts the involved TCs agree which TC is in the lead, and how participation and communication is arranged.
- That in all situations were an EN-ISO Standard is developed experts from both CEN and ISO can participate in the WG whether the lead is in ISO or CEN.
- That the lead, once established, will not change during the development of the document.
- One CEN/TC and one ISO/TC are formally registering the Work item. If more than one CEN/TC or ISO/TC is involved, the CEN/TC and ISO/TC’s that have registered the Work item have to arrange the co-operation between the TC’s within their own organization (CEN respectively ISO).
- In case of systematic review of an EN-ISO standard (within ISO) the EN-ISO Standard under systematic review will be made available in CEN/TC 444 in order to inform the members of CEN/TC 444 and obtain feedback on the future of these Standards.

The following point are highlighted for a successful cooperation:

- The (informal) exchange of information between the concerned Chairs and Secretaries of both CEN and ISO/TCs and/or SCs.
- Respect and trust each other also when the other organization (CEN or ISO) is in the lead.

B.2 Introduction

B.2.1 Objective

This Annex provides a guideline for CEN/TC 444 on how cooperation with ISO committees will be organized in case of new Standard development and revision of existing Standards. The cooperation between CEN/TC 444 with ISO/TCs is essential in order to make standardization more effective and efficient. With this in mind this procedure will also be shared and communicated with the concerned ISO/TCs.

For inter CEN/TC Standard development and cooperation see Annex A: Code of practice: on the inter-TC cooperation in the field of environmental standardization.
B.2.2 Introduction

CEN/TC 444 strives for a standardization process that is as efficient as possible. This implies the optimal use of available resources and expertise for the benefit of the stakeholders of both CEN and ISO. Duplication of work should be avoided and synergies should be developed. Within this context, CEN/TC 444 aims to make optimal use of the agreement on technical cooperation between ISO and CEN (Vienna Agreement). The Agreement helps ISO and CEN to exchange information and increases the transparency of CEN work to ISO members and vice versa. General practical guidance on how to cooperate are listed in the VA guidelines (7th edition, 2016). In this annex the cooperation between CEN/TC 444 and ISO/TCs (e.g. ISO/TC 190 and ISO/TC 275) is detailed for the specific situation were single-matrix or multi-matrix standardization is foreseen.

B.2.3 Communication

In order to organize and facilitate cooperation between CEN and ISO, communication between CEN/TC 444 and ISO/TCs is essential. Depending on the situation (see Clause B.2.3.1) this document gives guidance to the cooperation process.

B.2.3.1 Situations for cooperation between CEN and ISO

In the development and maintenance of Standards, Technical Reports and Technical Specifications (all referred to as 'standard' in this document) different situations can occur. The various foreseen situations for cooperation between CEN/TC 444 and ISO are:

1. Initiative for the development of a new standard by CEN/TC 444
2. Initiative for the development of a new standard by an associated ISO/TC
3. Development of an EN-ISO standard under CEN-lead
4. Development of an EN-ISO standard under ISO-lead
5. Revision of a European Standard in case there is also a comparable ISO Standard
6. Revision of an ISO Standard in case there is also a comparable European Standard
7. Revision of an EN-ISO standard
8. Existing ISO Standard to be adopted by CEN/TC 444
9. Existing EN Standard to be adopted by ISO/TC(s)

General points of attention for cooperation between CEN/TC 444 and ISO are:

- In case two or more ISO/TCs are willing to cooperate with CEN/TC 444 on Standard development, a decision is needed by the ISO/TCs to determine the ISO/TC that will register the Work item in its work program (only one ISO/TC can be the formal counter TC).
- In case waste is in the scope of the Standard, CEN lead is the preferred option (there is no ISO/TC on waste). Alternatively, ISO/TC 190 can take the lead if soil and waste are concerned. If more matrices are involved, the multi-matrix standards are preferentially developed and maintained under CEN/TC 444.
- Cooperation between CEN and ISO on new work items or revisions of existing items results in an EN-ISO standard with identical Standard number in both CEN and ISO.
- a new Standard development project shall contain all matrices concerned in both title and scope (alphabetical order).
- In case of validation a table is added to the scope of the standard listing per matrix the validation data available in the standard.
**Situation 1: Initiative for the development of a new standard by CEN/TC 444**

The initiative for a NWIP in CEN/TC 444 is shared with the CEN/TC 444-Secretary as soon as possible and preferably before the NWIP is formally submitted to the CEN/TC 444-secretariat. In this phase the CEN/TC 444 Chair and Secretary will discuss with the relevant CEN/TC 444/WG Convenor if cooperation with ISO could be an option.

If ISO cooperation is not an option CEN/TC 444 launches the NWIP as a CEN Work item see Annex A.

If ISO cooperation is supported by CEN/TC 444, the CEN/TC 444-Secretary contacts the ISO counter TC(s)-Secretary with the request for cooperation (resulting in an EN-ISO) and proposal for CEN or ISO lead. After having received the response from the ISO/TC(s) the NWIP will be launched (preferably within 4 weeks after the first contact with the CEN/TC 444-Secretary).

**Situation 2: Initiative for the development of a new standard by an associated ISO/TC**

The ISO/TC and/or ISO/SC-Secretary investigates whether cooperation with CEN/TC 444 is an option. If so, the ISO-Secretary contacts the CEN/TC 444-Secretary. The CEN/TC 444-Chair and Secretary will discuss with the relevant Working Group Convenor (convenor may decide to consult WG-members) if cooperation with ISO is an option. CEN/TC 444 responds within 2 weeks.

The CEN/TC 444-Secretary will inform the ISO-Secretary whether cooperation on the ISO proposal is supported by CEN/TC 444, consequently the NWIP will be launched indicating CEN or ISO lead. CEN or ISO lead will be decided on a case-by-case basis (since it is an ISO initiative ISO-lead is most logical).

If CEN-ISO cooperation is not an option for CEN/TC 444 the ISO/TC continues with the development of a pure ISO standard and launches the NWIP.

In case an ISO/TC launches a NWIP for voting without prior communication with CEN/TC 444 and the item is of interest for CEN/TC 444, CEN/TC 444-Chair and Secretary will discuss with the CEN/TC 444/WG Convenor if cooperation with ISO should still be considered. If so, the ISO/TC is informed on the wish to cooperate.

### Points of attention:
- Considering that the initiative comes from ISO-side, the most obvious way forward will be with ISO-lead.
- Cooperation between CEN and ISO and parallel voting results in an EN-ISO standard with identical Standard number.
Situation 3: Development of an EN-ISO standard under CEN-lead

The NWIP is approved by both CEN and ISO members and there is agreement on CEN lead in the Standard development. CEN/TC 444 assigns the work item to one of its Working Groups.

The CEN/TC 444/WG starts drafting the Standard, communicates with the ISO counterpart(s) and requests the ISO/TC(s) to nominate experts. If desired, non-European ISO-members are welcome to participate in the CEN/TC 444/WG responsible for the development of the standard.

NOTE 1 It might occur that an ISO/TC is showing interest on a CEN/TC 444 work item after a CEN/NWIP has been approved, but before the CEN-enquiry is initiated. In this case the CEN/TC 444-Secretary will verify if cooperation is preferred and contacts CCMC on the wish for cooperation with the ISO/TC. The lead for the Standard development will remain in CEN/TC 444.

NOTE 2 If an ISO/TC is showing its interest to cooperate with CEN/TC 444 on a work item that already passed the CEN-enquiry stage, the ISO/TC is advised to consider situation 9.

It is up to CEN/TC 444 to decide whether or not to skip the Formal Vote. The decision to decide whether or not to skip the FDIS is made by the cooperating ISO/TC.

*Points of attention:*
  - If desired the involved ISO/TC(s) can nominate representatives to attend the CEN/TC 444 meetings.
The ISO/TC(s) shall be kept informed and given the opportunity to contribute to the drafting of the standard at all stages of the Standard development process. Preferably by the nominated ISO representative.

**Situation 3**

- EN-ISO standard development under CEN/TC 444 lead
- WI assigned to specific WG
- WG requests experts from ISO/TC
  - More than 1 ISO/TC involved?
    - Yes: Define leading ISO/TC
    - No: Define participation from involved ISO/TC

- Define participation from all involved ISO/TCs
- Launch NWIP in CEN/TC 444

**Situation 4: Development of an EN-ISO standard under ISO-lead**

The NWIP is approved by both CEN and ISO members and ISO takes the lead in the standard development. If desired, CEN/TC 444 nominates representatives to attend the ISO-meetings and/or participate to the work.

The ISO/TC Working Group starts drafting the Standard and cooperates and communicates with the CEN/TC 444/WG and shares relevant Working Drafts.

**NOTE 1** It might occur that an ISO/TC Working Group is working on the development of a Standard and CEN/TC 444 is interested to cooperate before the ISO/DIS voting starts. In this case the CEN/TC 444-Secretary will contact the ISO/TC in order to apply for cooperation. The lead for the Standard development will remain in ISO.

**NOTE 2** If CEN/TC 444 is willing to cooperate and the ISO/DIS voting has already passed, situation 8 is applicable.

In case of parallel voting the ISO/TC can decide to skip ISO/CD and/or FV/FDIS voting. The decision to skip a voting and speed up the process is only made after consultation between CEN/TC 444 and the ISO/TC.

**Points of attention:**
- If desired, CEN/TC 444 can nominate representatives to attend meetings of the ISO committee.
CEN/TC 444/WG shall be kept informed and given the opportunity to contribute to the drafting of the standard at all stages of the Standard development process. Preferably by the nominated CEN representative.

**Situation 4**

- Approval of NWIP in both ISO/TC and CEN/TC 444
- WG of CEN/TC 444 assigns experts to ISO SC or WG
- ISO/WG shares documents with associated CEN/TC 444/WG

**Situation 5: Revision of a European Standard in case there is also a comparable ISO Standard**

When the proposer of the NWIP to revise a European standard identified one or more relevant existing ISO Standard(s). Before the NWIP is formally submitted to the CEN/TC 444-Secretary the CEN/TC 444 Chair and Secretary verify with the relevant CEN/TC 444/WG Convenor if cooperation with ISO is an option.

In case cooperation with ISO is identified as an option, the ISO/TC(s) Secretary is contacted. Situation 1 applies.

In case a related ISO Standard is identified, the ISO/TC(s) Secretary is consulted to discuss the possibilities to develop a new EN-ISO standard that could replace the existing EN Standard and existing ISO-standard. Consultations amongst members in both CEN/TC 444 and the respective ISO/TC(s) will be performed to learn about the consequences of replacing the existing European and ISO standard by a new EN-ISO standard before a decision is being taken on the way forward.

**Situation 5**

- Revision of EN-standard with identified ISO-standard
- WG Secretary or Convenor discusses with CEN/TC 444 Chair and Secretary if cooperation with ISO is an option
- Cooperation with ISO?
  - Yes: See Situation 1
  - No: Start revision in CEN/TC 444
Situation 6: Revision of an ISO Standard in case there is also a comparable European Standard
An associated ISO/TC takes the initiative to revise an existing ISO Standard for which there is a comparable EN Standard in the work program of CEN/TC 444. The ISO/TC Secretary contacts the CEN/TC 444 Secretary to check if cooperation is an option. CEN/TC 444 Chair and Secretary contact the CEN/TC 444 WG Convenor to discuss if cooperation could be an option. The consequences for cooperation with ISO for the existing European and ISO Standard should be investigated since cooperation will lead to an EN-ISO standard that supersedes the existing European Standard. If cooperation is decided on, Situation 2 applies.
If cooperation is not supported by CEN/TC 444, the ISO/TC starts with the revision of the ISO Standard without CEN involvement (resulting in an ISO standard).

Situation 7: Revision of an EN-ISO standard
If CEN/TC 444 wishes to revise an EN-ISO standard, the CEN/TC 444 Secretary contacts the ISO/TC. If the need to revise an EN-ISO standard is initiated in the ISO/TC, the CEN/TC 444 Secretary would like to be informed by the ISO-Secretary. The ISO/TC and CEN/TC decide on their need for a revision. Based on the need, matrices and available experts a decision on CEN or ISO lead for the revision of this Standard is agreed between CEN/TC 444 and the ISO/TC. Depending on the lead, situation 3 (CEN/TC 444 lead) or situation 4 (ISO lead) applies.
Points of attention:
- For EN-ISO Standards, CEN does not carry out systematic reviews. ISO carries out the systematic reviews on the corresponding – identical – ISO standards and decides on their future. The EN-ISO Standards under systematic review will be made available in CEN/TC 444 by the Secretary in order to inform the members of CEN/TC 444 and obtain feedback on the future of these Standards.

Situation 7

Situation 8: Existing ISO Standard to be adopted by CEN/TC 444

All stakeholders can submit a proposal to the CEN/TC 444 Secretary for European acceptance of an existing ISO Standard. The CEN/TC 444-Chair and Secretary will contact the respective CEN/TC 444/WG Convenor to advise whether existing EN Standards are of concern. After positive consultation in CEN/TC 444 (Decision by Correspondence with two months consultation), CCMC is informed and a NWIP on the European acceptance of the ISO Standard is started in CEN/TC 444.

In case no comments are received on the NWIP and subsequent Enquiry; publication of the EN-ISO Standard follows. Eventual existing EN Standards of concern are superseded.

In case comments are raised by the CEN members these shall be communicated with the respective ISO committee in charge of this publication, to see whether a revision of this ISO method is in place.

- If agreed to revise, the CEN/ISO members will accept parallel development and work together on an EN-ISO Standard (see situation 1).
- If not, CEN/TC 444 can either:
  a. decide to disregard the comments and continue to publish as EN-ISO;
  b. accept the ISO document with modifications as an EN Standard.
Situation 9: Existing EN Standard to be adopted by ISO/TC(s)

When an ISO/TC decides to adopt a European Standard the Standard will be published as an ISO Standard (which could be technically identical to the EN Standard or contain minor changes). CEN/TC 444 could decide to adopt this ISO Standard as an EN-ISO Standard if this is favoured. Another and preferred option to publish EN-ISO Standards is that the ISO Secretary could contact the CEN/TC 444 Secretary on this planned action. Subsequently, the CEN/TC 444-Chair and Secretary discuss with the CEN/TC 444/WG Convenor (convenor may decide to consult WG-members) if the development of a common EN-ISO Standard is preferred over an identical, but stand-alone ISO standard and what will be the consequences of revising the EN standard to become an EN-ISO standard. After this consultation the ISO/TC is informed on the CEN/TC 444 position. In case it is agreed to cooperate on the revision of the EN Standard resulting in the development of a new EN-ISO standard, then situation 1 or 2 applies. Otherwise the ISO/TC will proceed to adopt the EN Standard as a stand-alone ISO standard (probably with a non-identical ISO number). In case a multi-matrix EN Standard is concerned the ISO/TCs involved need to decide on the lead position for adoption as the EN standard can only be adopted in ISO once.

Points of attention:
- In case a multi-matrix European Standard is involved, CEN/TC 444 will strive to have this Standard adopted as a whole by only one ISO/TC (as an identical multi-matrix Standard). In case more than one ISO/TC is involved, CEN/TC 444 will strive for good communication between all involved TCs.
- It is up to the ISO/TCs to decide on the adoption procedure at ISO level.
ANNEX C: INFORMATION ON THE VALIDATION OF EUROPEAN STANDARDS

C.1 General
This Annex gives further information on the validation of European standards in addition to CEN-Guide 13 and CEN/TS 16800 ‘Guideline for the validation of physic-chemical analytical methods’, which provide a backbone for validation trials. The recommendations given in this annex are in line with the outcome of the Workshop ‘Validation’ that has been organized during the ISO/TC 190 ‘Soil quality’ meeting in Berlin on 2014-10-20.

C.2 Present status within Environmental CEN/TCs
— The Environmental CEN/TCs accepted in 2008 the principles for validation of standards as described in CEN Guide 13 ‘Validation of Environmental Test Methods’ and resolved to work in accordance with these principles;
— This implies that only validated test methods can be published as full standards (see CEN-Guide 13);
— Not all standards are indeed test methods and, therefore, there might be a necessity to differentiate this general principle to some extent (CEN-Guide 13).

C.3 Recommendations
The proposer of a new work item shall present the procedure of the method in such a way that a decision on validation can be made. The proposer of a new work item shall present the validation procedure (if necessary) and shall be responsible for the execution of the validation. If the deliverable is a full standard, the WG shall recommend and CEN/TC 444 shall decide on the necessity and degree of validation:
— No validation required (reasons shall be given for this decision);
— Adoption of existing validation data from equivalent standards;
— Limited validation (e.g. limited set of samples, matrices, compounds, number of laboratories) required;
— Full validation required.

If an international laboratory comparison (ILC) is necessary, it shall be performed preferably at prEN stage and therefore a Formal Vote is necessary. After the validation the WG shall recommend and CEN/TC 444 shall decide on the validation acceptance criteria for publication as full standard. If the above criteria are not met, there shall be a Technical Specification from the beginning. However, in order to allow a discussion outside of CEN/TC 444, the proposal shall be treated as a standard (i.e. all stages: WD, prEN), but being changed to Technical Specification after prEN voting. If data from accredited laboratories using an already published Technical Specification are available, the WG may recommend and CEN/TC 444 may decide that these data can be used for validation and the CEN/TS can be upgraded to a full standard. If appropriate, a summary of the data on robustness etc. can be included in the informative annex on validation.
ANNEX D: HISTORY TO THE ESTABLISHMENT OF CEN/TC 444

CEN/TC 444 was established in 2015. The initiative for this CEN/TC 444 came from CEN/TC 292 (Characterization of waste), CEN/TC 345 (Characterization of soils) and CEN/TC 400 PC (Horizontal standards in the field of sludge, biowaste and soil) after discussing their status and future perspectives. These TCs encountered similar issues in terms of reduction of the number of experts available to develop standards, reduced interest from stakeholders in general, as well as reduced financial means to support the secretariat, perform validation studies, and allow people to travel to meetings. All are needed to ensure maintenance of standards that have been developed by these TCs in the past as well as to ensure the development of new standards to cover future needs.

It was observed that a number of TCs in the environmental field are moving from a stage of standards development towards predominantly standards maintenance (reviewing, adaptation, renewing) and transposition of ISO standards into EN ISO standards. At the same time, the future challenges in the environmental sector were no longer matrix oriented, but integrated (e.g. climate change, circular economy). Both underlined the need to discuss whether the current (predominantly singe matrix) organization of environmental standardization in CEN will remain fit-for-purpose in the future.

TCs in the environmental field use similar ways of characterizing their matrix and face similar future needs for standardization. It was also recognized that a new organization could also be relevant to a number of other TCs currently active in the environmental field. Therefore CEN/TC 292, CEN/TC 345 and CEN/TC 400 PC requested CEN/SABE to initiate a discussion with representatives of CEN/TCs active in the environmental field and their stakeholders on the future organization of the CEN environmental Technical Committees.

On 5 June 2014, SABE organized a workshop to discuss the ideas raised by CEN/TC 292, CEN/TC 345 and CEN/TC 400 PC with a larger group of TCs and their stakeholders (European Commission, national authorities, EU industries, laboratories, NGOs and regulatory bodies).

Based on the outcome of the SABE workshop, responses of mirror committees and the decisions taken in the plenary meetings of CEN/TC 292, CEN/TC 345 and CEN/TC 400 PC in October 2014, the new structure as given schematically in Figure A.1 was proposed to CEN/BT in May 2015. In August 2015 the creation of CEN/TC 444 was approved by the NSBs (Decision BT C59/2015).

CEN/TC 292 and CEN/TC 345 adjusted their scopes with the establishment of CEN/TC 444. CEN/TC 400 PC has been disbanded in 2016 after transferring all of its standards to CEN/TC 444.
ANNEX E: OVERVIEW OF EC-MANDATES ISSUED TO CEN IN RELATION TO CEN/TC 444

CEN/TC 444 partly developed and maintains standards that have been requested by the EC through a financed mandate. The EC mandates listed have been published by the former CEN/TCs that transferred their standards to this CEN/TC 444.

These EC mandates are:

— M/326, Standardization mandate to CEN for the development of standardized methods for the characterization of waste (originally CEN/TC 292)
— M/330, Mandate given to CEN for the development of horizontal standards in the fields of sludge, biowaste and soil (originally CEN/TC 400 PC)
— M/395, Mandate to CEN for the development of standardized methods relating to the characterization of wastes from the extractive industries (originally CEN/TC 292)
ANNEX F: PROCEDURE FOR MUTUAL CONSULTATION BETWEEN CEN/TC 351 AND CEN/TC 444

This procedure for mutual consultation between CEN/TC 351 and CEN/TC 444 was accepted by Decision 54 (02/2017).

The draft multi-matrix (horizontal) methods on leaching and analysis of CEN/TC 351 ‘Construction products: assessment of release of dangerous substances’ are circulated for comments in CEN/TC 444 (through the CEN/TC 444 secretary).

- For CEN/TSs, this is in parallel with the regular consultation of construction product TCs.
- For ENs, this will be in parallel with the CEN enquiry procedure. Comments sent by CEN/TC 444 will be considered in the relevant CEN/TC 351/WG; voting is for CEN members only.
- For new test methods/NWIs by either TC, collaboration will be sought. This could result in experts joining the appropriate WGs or even in a joint WG.

CEN/TC 444 will take relevant standards from CEN/TC 351 (and vice versa) into consideration when updating its existing standards.