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**HORIZONTAL - ORG**

# HORIZONTAL STANDARDS ON ORGANIC MICRO-POLLUTANTS FOR IMPLEMENTATION OF EU DIRECTIVES ON SLUDGE, SOIL AND TREATED BIO-WASTE

**Instrument: STREP**

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# Report on sampling draft standards D 2.1 (part 2)

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## Horizontal WP2, Sampling: Draft Standards

Provided the materials meet certain quality criteria, sewage sludge and treated biowaste may be applied to land for agricultural benefit. Land application is governed by national laws, which are based on European Directives, which require that the sewage sludge, treated biowaste and the land to which it is applied are tested.

The objective of project HORIZONTAL WP2, *Sampling*, is to develop horizontal and harmonised European Standards for the sampling of soils in the landscape, sewage sludge and treated biowaste.

CEN TC 292, *Characterisation of waste* – WG1, *Sampling*, has developed a new CEN standard for sampling of waste materials, which, at the time of writing, is in the approval phase. The waste standard takes the form of a Framework Standard, and five Technical Reports (TRs) that support the Framework Standard (Table 1).

For situations where, due to the environmental quality of the treated biowaste or sludge, re-use on land is not permitted, these materials are regarded as waste. It would make sense for any new sampling standards to either be identical to, or a modified form of the waste standards so that sampling effort is not duplicated.

Horizontal WP2 reviewed the draft waste standards to identify the possibility of adapting the waste standards for sampling of sewage sludge, treated biowaste and soil in the landscape. A report for discussion was produced (Annex A). This was followed by discussions with the Chairman of CEN TC 292 to identify the implications of the options (Annex B).

It was concluded that, although alteration of the waste standards to include the materials covered by Project Horizontal probably would be the most 'Horizontal' solution, there were many disadvantages, both in terms of clarity of the standards and the consequences on the timeframe for TC 292.

It was decided that Horizontal WP2 would produce a new standard, to be based on the waste standards (Option C in Annex B). The proposed documents (Table 2) are presented schematically in Figure 1.

### Table 1: TC 292 waste standards

EN 14899:2005 Characterization of waste - Sampling of waste materials - Framework for the preparation and application of a Sampling Plan (Status: Plan Cited in OJ, Not Published (1901-01-01)).

prCEN/TR 15310-1Characterization of waste - Sampling of waste materials - Part 1: Guidance on selection and application of criteria for sampling under various conditions (Status: Under approval).

prCEN/TR 15310-2 Characterization of waste - Sampling of waste materials - Part 2: Guidance on sampling techniques (Status: Under approval).

prCEN/TR 15310-3 Characterization of waste - Sampling of waste materials - Part 3: Guidance on procedures for sub-sampling in the field (Status: Under approval).

prCEN/TR 15310-4 Characterization of waste - Sampling of waste materials - Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery (Status: Under approval).

prCEN/TR 15310-5 Characterization of waste - Sampling of waste materials - Part 5: Guidance on the process of defining the sampling plan (Status: Under approval).

**Table 2: Proposed new standards**

EN xxxx:yyyy Introductory element - Sampling of sewage sludge, treated biowastes and soils in the landscape - Framework for the preparation and application of a Sampling Plan

prCEN/TR xxxx- Introductory element - Sampling of sewage sludge and treated biowastes - Part 1: Guidance on selection and application of criteria for sampling under various conditions.

prCEN/TR xxxx-2 Introductory element - Sampling of sewage sludge and treated biowastes - Part 2: Guidance on sampling techniques.

prCEN/TR xxxx-3 Introductory element - Sampling of sewage sludge and treated biowastes - Part 3: Guidance on procedures for sub-sampling in the field.

prCEN/TR xxxx-4 Introductory element - Sampling of sewage sludge and treated biowastes - Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery.

prCEN/TR xxxx-5 Introductory element - Sampling of sewage sludge and treated biowastes - Part 5: Guidance on the process of defining the sampling plan.

prCEN/TR xxxx-6 Introductory element - Sampling of soils in the landscape - Part 5: Guidance on the process of defining the sampling plan.

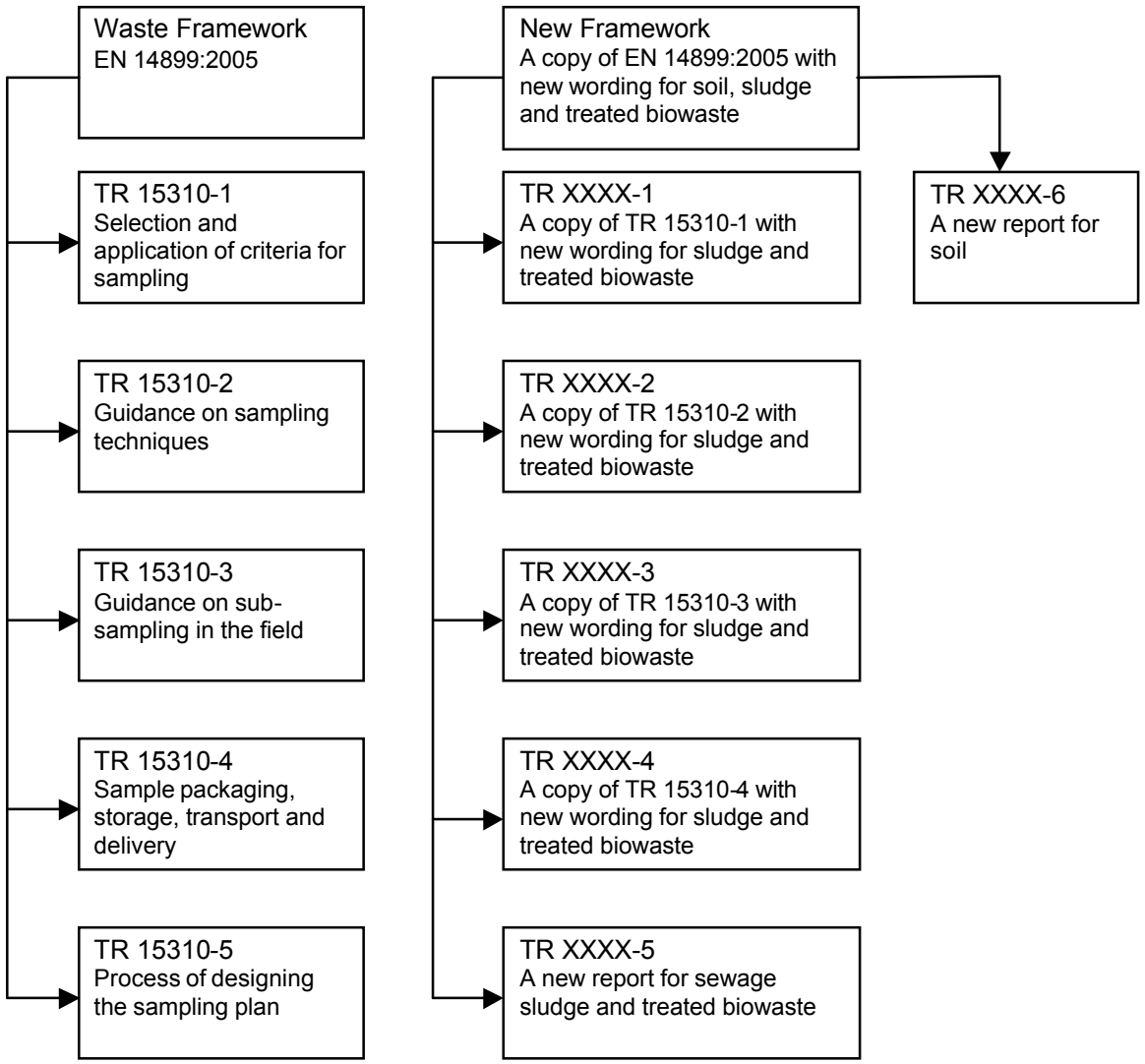


**Figure 1:** Proposed organisation of Horizontal Standard for sampling sewage sludge, treated biowaste and soils in the landscape

# Annex A

## HORIZONTAL-ORG: Report on standards for sampling sewage sludge and biowaste

**New Standards for Sampling Waste:** Discussion Document for meeting TC 292 WG1 15/02/05
(Author: Horizontal WP 2)

## 1. Introduction

The overall aim of project HORIZONTAL is to produce horizontal standards where possible. The materials considered in HORIZONTAL are soils in the landscape (agricultural soils – not heaps or contaminated soils), sewage sludge and treated biowaste.

CEN TC 292, *Characterisation of waste* – WG1, *Sampling*, is developing a new CEN standard for sampling of waste materials. The standard takes the form of a Framework Standard, which will be adopted as a CEN standard, and five Technical Reports that will support the Framework Standard.

The aims of this work were to:

i. examine the feasibility of adapting the CEN TC 292 Framework Standard as a framework applicable to those materials considered in the HORIZONTAL project, i.e. soils in the landscape, sewage sludge and treated biowaste;
ii. examine the feasibility of either adapting the supporting Technical Reports or producing new Technical Reports in a similar format for sampling soils in the landscape, sewage sludge and treated biowaste.

Materials need to be sampled for many reasons. An important step in the process of sampling is the development of a sampling plan that defines the objective of the sampling exercise and how the sampling should be carried out. A number of procedures in the production of a sampling plan are common to sampling of all materials.

Any biomaterial (treated biowaste, sewage sludge, etc) that is rejected due to failure to reach the standard required may be regarded as waste. Therefore it is important that account is taken of the standards for the characterisation of waste materials when designing a plan for the sampling of biomaterials. Failure of the biomaterials sampling scheme to meet the requirements for waste characterisation could result in duplication of the sampling effort.

There are two questions to be answered:

i. can the CEN TC 292 standards be adapted so that they can be applied to preparation of a sampling plan for sewage sludge and treated biowaste?
ii. can the CEN TC 292 standards be adapted so that they can be applied to preparation of a sampling plan for soils in the landscape?

## 1.2 How the Sampling of Waste standards are organised

CEN TC 292 WG1 (Characterization of Waste: Sampling techniques for waste) have produced a suite of six documents. It is intended that the first document, WI 292001

Framework Standard, will be adopted as a CEN standard and that the remaining five documents will be Technical Reports supporting the Framework Standard:

i. WI 292001 prEN 14899: Characterisation of Waste – Sampling of waste materials: Framework for the preparation and application of a Sampling Plan

ii. TR xxxx 1: Characterisation of Waste – Sampling of waste materials - Part 1: Guidance on the selection and application of a basic statistical approach to sampling under various conditions

iii. TR xxxx 2: Characterisation of Waste – Sampling of waste materials - Part 2: Guidance on sampling techniques

iv. TR xxxx 3: Characterisation of Waste – Sampling of waste materials - Part 3: Guidance on procedures for sub-sampling in the field

v. TR xxxx 4: Characterisation of Waste – Sampling of waste materials - Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery

vi. TR xxxx 5: Characterisation of Waste – Sampling of waste materials – Part 5: Guidance on the process of defining the sampling plan

### 1.3. Current status

According to the CEN website (http://www.cenorm.be; accessed 15/12/04) the current status of the six 292 documents is:-
WI 292001 pr EN 14899-Framework Standard is under approval, Date of Availability (DAV) is 2005-2008. The other five documents are 'under development', DAV 2005-2009.

The following sections review each of the parts of the Characterisation of waste documents. Each document is briefly described then general observations are made on the likely suitability to sampling of sewage sludge and treated biowastes, and to sampling of soils in the landscape.

## 2. Documents outline

### 2.1. Framework for the preparation and application of a Sampling Plan

WI 292001 prEN 14899, the Framework Standard, provides a framework for preparing and applying a sampling plan, from which it should be possible to produce a sampling plan for any testing programme.

Three key steps for taking a sample are identified and the links between them are explained by means of a diagram. Key Step 1 is defining the sampling plan; Key Step 2 is taking the sample in accordance with the plan and producing a sampling record; Key Step 3 is transporting the sample to the laboratory.

Clause 4 of the standard explains the principles behind a sampling plan, identifies the key elements and outlines the general requirements for taking a sample and reporting the testing programme.

The explanations are accompanied by a diagram that shows all the key elements making up the key steps and directs the user to the relevant section in Clause 4 and to the five Technical Reports.

The five supporting Technical Reports (TR1-TR5) contain procedural options that can be selected to match the sampling requirements of any waste testing programme.

## 2.2. Part 1: Guidance on the selection and application of a basic statistical approach to sampling under various conditions

Key Step 1, as described in the Framework Standard, is defining the Sampling Plan. TR1 provides information to support Key Step 1 and describes the selection of a sampling approach for taking a sample for a wide variety of waste types and arisings. TR1 specifically supports Clause 4.2.7 of the Framework Standard, *Select sampling approach*.

This Technical Report discusses the statistical principles of sampling. The process of *Defining the Sampling Plan* is broken down into 12 main statistical steps that should be worked through when planning a sampling programme.

Clause 2, *Terms and Definitions*, contains definitions that are either taken directly from ISO 3534 Parts 1, 2 and 3 or have been adapted from them. Additional notes are provided to clarify terms that are written in statistical language. Two examples given in the notes relate to waste, but in both cases the words ‘of waste’ could be removed without losing the meaning or usefulness of the example.

Clause 3, *Specify the objective of the Testing Programme*, is a short section that explains that the objective of the Testing Programme needs to be made clear prior to selecting a sampling strategy because it determines the sampling strategy that is selected. The narrative is clarified by the addition of notes. One of these is specific to waste and clarifies the requirements of the Landfill Directive.

In Clause 4, *Develop the technical goals from the objective*, seven main steps are identified for deriving the technical goals from the objectives. The reader is directed to explanations of each step given in the relevant clauses in TR1 Annex A and in TR5 (Part 5: Guidance on the process of defining the sampling plan). The seven steps are:

1. Define the population to be sampled
2. Assess variability
3. Select the sampling approach
4. Select constituents to be studied
5. Identify the scale
6. Choose the required statistical parameter
7. Choose the desired reliability

Each of the steps is described in plain words and where statistical terms are used they are also described in detail and illustrated with examples. For example, subclause 4.2, *Define the population to be sampled*, explains the terms ‘overall population’, ‘population’ and ‘sub-population’ and gives examples of these terms as applied to different categories of material.

Throughout the document there are references to waste, but in most cases the word could be omitted without losing any of the meaning. Additional examples for other materials could be added, but are probably not required.

## 2.3. Part 2: Guidance on sampling techniques

This Technical Report provides information to support Key Step 2: *Taking a sample in accordance with the Sampling Plan*.

TR2 discusses the principles of selecting appropriate sampling techniques and assists the reader in coming to a decision on the most appropriate sampling equipment and techniques sampling material in a particular physical form and nature of arising.

The three opening chapters define the scope, terms and definitions and the principles of selecting sampling techniques. Chapters 5-11 cover the possible scenarios for sampling materials with various physical forms and risings. Chapter 4 assists the reader in locating the clauses most appropriate to the proposed sampling scenario.

Essentially chapter 4 is a series of decision charts. Each chart directs the reader to the chapter and clauses appropriate to the sampling scenario. For example, if the scenario were sampling sludges, the reader would be directed to chapter 8, *Sludges*, for general information and to Figure 4.4 for direction to information more specific to the sampling location, e.g. a lagoon or pit.

In some cases, the sampling procedure will be the same for more than one scenario. In this case there is no duplication of information; the reader is directed to the first occurrence within the TR.

Annex A supports the information given in the body of the TR. It includes a table listing the type of equipment available and indicating which sampling applications they are best suited to. In the text, each piece of equipment is described by means of words and diagrams.

## 2.4. Part 3: Guidance on procedures for sub-sampling in the field

TR3 describes procedures for sample reduction in the field in preparation for transportation to the laboratory. It is assumed that one or more samples have been collected following the instruction in TR2.

Clause 3, *Principles of sub-sampling in the field*, describes the reason for sub-sampling and the precautions that should be taken to ensure the integrity of the sample. Clause 4, *Apparatus*, lists suitable apparatus and directs the reader to general advice in Annex A. At the time of writing there is little information in Annex A apart from headings, figure legends and single sentence descriptions (Version May 2004).

The remaining clauses describe the process of sample reduction by means of a series of processes: Clause 5, *Sample preparation* [for sample reduction]; Clause 6, *Preparing a mixed sample*; Clauses 7-12, *Generic sub-sampling*.

## 2.5. Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery

Clauses 3 and 4 of this TR describe selection of suitable containers, packaging and labelling issues and sample preservation. Clauses 5 and 6 refer the reader back to the Framework Standard for chain of custody forms and the sampling plan.

Table 1 (subclause 4) lists minimum preservation measures for different sample components, e.g. volatile and semi-volatile components. Annex A lists the sample containers, preservation and storage conditions appropriate for the different parameters that are to be tested.

The reader is advised more than once that guidance on preservation techniques should be sought from the analytical laboratory: 3.1.1, *Selecting a sample container/General*; 3.2.3, *Shape and size of container*; 3.1.4, *Preparation of sample containers*; 4.2. *General instructions for sample preservation*; 4.4.6, *Chemical preservation*.

## 2.6. Part 5: Guidance on the process of defining the sampling plan

TR5 is written to be used by two distinctive groups of users, policy makers involved in sampling and sampling specialists.

This Technical Report takes the reader through the process of defining a sampling plan for waste and provides examples of sampling plans for specific situations where waste is sampled and refers the user to other TRs in the suite for more information.

It is waste-specific, referring to waste legislation and terms and definitions that have specific meanings with respect to waste.

# 3. Document Suitability for preparation of a sampling plan for sewage sludge and treated biowaste

## 3.1. Framework for the preparation and application of a Sampling Plan

The Framework Standard is written such that it gives structure to the process of designing a sampling plan. The document has lots of references to waste, but that is expected since it was designed for sampling of wastes. Although it appears to be specific to sampling of waste, it is likely that, with some minor changes, it could be used to produce a testing programme for any material.

(a) The Introduction opens with a paragraph defining waste. The same paragraph is also used as the opening paragraph to all the Technical Reports associated with this standard.
This paragraph could be removed without losing any of the meaning from the rest of the document. However it also contains terms that are appropriate to an introduction to sampling of other materials, such as sewage sludge and treated biomaterials. For example, it highlights that testing allows informed decisions on appropriate treatments and the need for representative sampling for valid tests. Removing the paragraph in its entirety would mean these valuable points would be lost. The paragraph could be reworded in the Framework Standard, but left unchanged in the Technical Reports, unless they too are to be made general.

(b) All the references to waste as a material to be sampled, e.g. subclause 3.15, definition of the term *Sampler*, need to be generalised. In almost every case this could be achieved either by removing the word 'waste' or by substitution with the phrase 'material to be sampled'.

(c) Throughout the document there are references to the other waste TRs in this suite. In some cases this could be replaced by directing readers to a list of Technical Reports, Guidances or Standards containing equivalent information for each of the materials, e.g. waste, sludge, treated biowaste. Such a change would need careful consideration to avoid overly complicating the document.

However, if the other TRs in the suite were also made general, this would not be a problem.

(d) The terms and definitions should be cross-referenced with standards covering other materials to ensure that there are no contradictions.

(e) Currently Clause 3, *Terms and definitions*, states that the list of terms and definitions is "supplemented by the definitions given in prEN 13965 (drafted by TC 292/WG4)". This standard, published in two parts, was accepted by CEN and published in 2004 (EN 13965-1:2004 Characterization of waste- Terminology- Part 1: Material related terms and definitions; EN 13965-2:2004 Characterization of waste- Terminology- Part 2: Management related terms and definitions). If the Framework Standard is to be made into a general standard it may be necessary to incorporate some additional terms from standards for sampling other materials.

(f) In subclause 4.2.3, *Testing level*, the examples are related to waste and the Landfill Directive. The terms *Level 1*, *Level 2* and *Level 3 testing* are specific terms used in the Landfill Directive, but the descriptions of the testing levels are equally applicable to other materials. Non-waste examples could be included.

(g) The items listed in subclause 4.2.5.3, *Material type and dimensions*, include those that could be applied sludges and treated biowastes, but none of the items are applicable to soils in the landscape. If the Framework Standard is to be applied to any testing programme, including soils in the landscape, then a term, for example 'area of land', could be added. Such a term also could apply to contaminated soils.

(h) In Table A.1, *Example of a Sampling Plan*, there are references to the Waste Technical Reports. These could be deleted.

(i) In Table B.1, *Example of a Sampling Record*, the details of the 'w*aste producer*' are included. This is different from Table A.1, *Example of a Sampling Plan*, and waste-specific. The term '*material producer*', as used in the Sampling Plan would be not only more general, but also more consistent.

(j) Figure 2, *Key elements of a Sampling Plan*, could present the greatest problem for adaptation. It refers the user to the Technical Reports that support the Framework Standard. If these references were removed the diagram could become less effective; leaving them in makes the diagram waste-specific.

There are two possibilities. Firstly, if the other TRs are waste-specific then one or more equivalent diagrams for other materials that direct the user to the relevant standards could be produced. Alternatively, if the other TRs in the suite were

made general then the changes to the Framework Standard would be less problematic.

### 3.2. Part 1: Guidance on the selection and application of a basic statistical approach to sampling under various conditions

The introductory paragraph is waste-specific See 3.1 (a).

Terms and definitions will need to be cross-referenced across the standards and 5 TRs. There are some discrepancies that may need justifying. All the examples are waste-related.

Clause 3, *Specify the objective of the Testing Programme*. Additional notes may be needed to cover the other directives with respect to biomaterials and sludges.

Clause 4, *Developing Technical Goals*. There are a few clauses that are very waste-specific with respect to their examples, but a few extra words could be added for other materials.

Subclause 4.2.5, *Examples*. Liquid sewage sludge, dewatered sewage sludge, dried sewage sludge and compost could all be accommodated under the examples, only granular materials have waste-specific examples.

Annex E provides example sampling scenarios. These are all specific to waste sampling. If the introduction was made less specific then a list of additional scenarios could be added for biowaste examples. For example, currently there are 14 examples/scenarios for waste. These could be numbered from 1.1 to 1.14 then biowaste from 2.1 to 2.x, sludges from 3.1 to 3.y, etc. Alternatively, they could be organised into separate annexes. In this case the title of Annex E might be changed to *Example sampling scenarios for waste*.

### 3.3. Part 2: Guidance on sampling techniques

The introductory paragraph is waste-specific See 3.1 (a).

Paragraph 4 of the Introduction refers to “waste types and arisings” and “discarded or secondary material”. These are waste-specific terms that would need rewording to make the TR applicable to other materials. There are other places in the TR that the term “waste” is used and could be either removed or replaced without losing any meaning.

On the face of it this document can be applied to any material that is sampled, including sewage sludge and treated biowaste. Because it has a modular design, it should be possible to add any number of new scenarios by extending the scope of Figure 4.1, *Generic process map for sampling*, and adding new scenario decision charts and chapters.

Most, if not all, of the scenarios for sampling sewage sludge and treated biomaterials are covered in this TR. A detailed examination of existing standards for biomaterials sampling will be required to identify any discrepancies; for example, incongruous terms and definitions or sampling methods, anything that has been added or lost by TR2.

### 3.4. Part 3: Guidance on procedures for sub-sampling in the field

The introductory paragraph is waste-specific See 3.1 (a).

This TR is written in a modular form, so it should be possible to add scenarios for sample reduction in the field for any material.

There are references to waste throughout the document, but to a lesser extent than the other TRs in the suite. In most cases the word could be either removed or replaced with a more general term, e.g. '*material*', without any loss of meaning.

There is at least one case where terminology has been confused, for example subclause 11.3.3.1, *Reduction of a bulk sample*. Here the terms *waste* and *soil* appear to have used interchangeably. It is assumed that this is an editorial error (the document is in development).

### 3.5. Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery

The introductory paragraph is waste-specific See 3.1 (a).

There are references to waste throughout the document. In most cases the word could be either removed or replaced with a more general term, e.g. '*material*', without any loss of meaning.

The exception is subclause 3.2, *Packaging specific types of waste*. In most cases the word *waste* could be replaced with *materials*, but the term *Hazardous Waste* has a specific meaning that may need to be left unchanged.

The sample preservation measures are based on existing standards. For general use, the instructions would need to be checked to ensure that there are no conflicts and all scenarios are included

### 3.6. Part 5: Guidance on the process of defining the sampling plan

This document is intended to illustrate the procedures that a sampling manager would need to work through to produce a sampling plan for waste.

There are some sections that are applicable to any material that is being sampled, for example, parts of subclause 4 that clarify populations and sub-populations and confidence intervals. However, TR5 was written specifically for waste and all of the examples are given for waste material.

It is unlikely that this TR could be extended for other materials without producing and unwieldy document. However, the format could be adopted to produce similar Technical Reports for other materials that need to be sampled.

## 4. Document Suitability for preparation of a sampling plan for soils in the landscape

### 4.1. Framework for the preparation and application of a Sampling Plan

In general the Framework Standard could be applied to sampling soils in the landscape once the comments in 2.3.1 are taken into account.

Subclause 4.2.5.3, *Material type and dimensions*: solids, does include examples that could be applied to sewage sludge and treated biowaste, or to soil in heaps, but not to soils in the landscape. This could be resolved by adding one or more additional examples, e.g. *soil in an agricultural field* or *soil in the landscape*.

### 4.2. TR1-TR5

These TRs are written for materials that are generally sampled from a three-dimensional situation and may appear in different forms. For example, sewage sludge could be a liquid, sludge or granules, depending on how it was treated. It could be sampled from a lagoon, tank, conveyor, heap lorry or bag, depending on its form and why it was being tested. Soils in the landscape will always be static, essentially two-dimensional mixtures of granular particles of various sizes.

Sampling of soils is defined in Annex IIC of the Sewage Sludge Directive (86/278/EEC), which states that 'The representative soil samples for analysis should normally be made up by mixing together 25 core samples taken over an area not exceeding 5 hectares which is farmed for the same purpose. The samples must be taken to a depth of 25 cm unless the depth of the surface soil is less than that value; however, the sampling depth in the latter case must not be less than 10 cm'.

In contrast the Sewage Sludge Directive states that 'Sludge must be sampled after processing, but before delivery to the user, and should be representative of the sludge production'. It does not specify the method of sampling.

If treated biowaste and sludge fail the quality standards for application to land they may considered waste materials. This is not the case with soils in the landscape, where the purpose of sampling is to determine the suitability of the land for application of biomaterials. Therefore there is less need for horizontal standards for waste and soil.

Much of the material in the Waste Technical Reports does not apply to sampling soils in the landscape. Rather than adapt the waste standards it would advisable to develop a separate standard for soil. A soil standard could adopt the approach taken with the waste standards, i.e. a top-down, modular design, and be referenced from a modified, more general, Framework Standard.

## 5. Conclusions

### 5.1 General conclusions

The Framework Standard for sampling waste and the supporting Technical Reports are written with a top-down, modular approach. This facilitates navigation through the process of designing a sampling plan and collecting a sample. This approach also

means it should be easier to add modules if necessary to cover additional sampling scenarios or materials.

These documents are at an advanced stage of development so, unless the changes are minor, it might be difficult for them to be altered. In most cases any changes required to make them more general should be minor. Typical changes required include the removal or replacement of the term *waste* and addition of non-waste examples.

Amendments could be made to prEN 14899, The Framework Standard, to make it applicable to all materials: waste, sewage sludge, treated biowaste, and soils in the landscape. The introductory paragraph that appears in The Framework Standard and all the TRs should be reworded in all cases except TR5.

If the Waste standards are acceptable for other materials then all terms and definitions need to be checked to ensure that there are no conflicts.

### 5.2 Standards for sampling sewage sludge and treated biowaste

It is likely that, once some modifications are made, TR1-TR4 could be adapted to make them applicable to sampling of sewage sludge and treated biowaste.

This may need the addition of some terms and definitions and additional supporting examples. The Technical Reports would need to be checked thoroughly for inconsistencies/conflicts between sampled media and with existing standards. The titles of the Framework Standard and Technical Reports would need to be made more general to reflect their suitability for sampling many materials other than waste.

It is unlikely that TR5 could be adapted for sewage sludge and treated biowaste. In this case a new Technical Report should be developed to illustrate sampling scenarios using TR5 as a template. This would meet the requirement for horizontal standards without producing unworkable documents.

### 5.2. Standards for sampling soils in the landscape

It is unlikely that TR1-TR5 could be adapted for soils in the landscape. In this case a new Technical Report should be developed following the structure of TR1-TR5.

## 6. Recommendations

It should be possible to devise sampling standards for sewage sludge, treated biowastes and soils in the landscape that are based on the standards being developed by CEN TC 292.

1. prEN 14899, The Framework Standard is amended to make it more generally applicable.

2. Technical Reports 1-4 are amended to make them more generally applicable.

3. Technical Report 5 is not changed and remains applicable to Waste only.

4. A new Technical Report is written for sampling sewage sludge and treated biowaste, using TR5 as an example.

5. A new Technical Report is written for sampling soils in the landscape, using the Waste technical Reports as an example.

# Annex B

**Resulting points for discussion based on the meeting on WP2 15/02/05**
(Author: Frank Lamé, Chairman of CEN TC 292, WG 1)

## 1. Standards to be produced

An essential point for discussion is what product(s) will be the result of WP2. Several options might be considered.
These alternatives are based on using the Framework Standard and accompanying TRs produced by TC292/WG 1 as a basis for standardization. The scope of HORIZONTAL is primarily the beneficial use of treated bio-waste and sludge on (agricultural) land. The following options are available:

A. Full incorporation of the necessary standard(s) for soil (in situ), treated bio-waste and sludge into the TC292/WG1 Framework Standard and accompanying TRs. This would be truly horizontal. For situations where, due to the environmental quality of the treated bio-waste or sludge, re-use on land is not permitted, these materials are regarded as waste so this option might be beneficial. However, there will be problems related to terminology ('waste' has to be altered), and clauses applicable to the specific field of sludge and bio-waste application may need to be added into the TRs. Finally, it would imply a (major) change of the existing Framework Standard and TRs which is undesirable from the perspective of the TC 292 deliverables.
B. Have one Framework Standard covering all materials with an additional series of TRs for sludge and treated biowaste. It is anticipated that only minor changes to the Framework Standard would be necessary to make it fully applicable to these materials. In contrast many more changes to the TRs would be required. Compared to option A, this option would mean more changes to the Framework Standard as there are additional (and specific) TRs to refer to. This option presents the same disadvantages for changes in terms (only in the Framework Standard) and consequences on the timeframe for TC 292.
C. Produce a new Framework Standard and series of TRs, specifically dealing with the topic of the sampling to assess the application of treated bio-waste and sludge. The basis for these new standard(s) would be the Framework Standard and TRs of TC 292. They will be copied as far as possible and relevant (deleting the irrelevant parts) and additions made to make them fully applicable for the application of bio-waste and sludge. This will be horizontal within the context of WP2 and might be considered horizontal to waste (and soil stockpiles) as there will be a large number of communalities. This option has no consequences for the work program of TC 292.

## 2. TRs, standard or …

Apart from the Framework Standard, a choice has to be made on the accompanying technical instructions (comparable to the TRs as produced by TC 292). The following formal documents are recognized by CEN (and described in the annex):

- Standard (EN)
- Technical Specification (TS)
- Technical Report (TR)
- Workshop Agreement (WA)
- CEN Guide (CG)

Relevant to this discussion is the degree of harmonization (in addition to standardization) we are trying to achieve. A relevant comparison can be made to specific analytical methods that are standardized. Certainly part of the technical instructions can be as prescriptive as those analytical methods. This might even be considered essential considering the associated errors; sampling errors are more fundamental than the errors associated with the analytical methods.

## 3. Hygienic parameters

There is currently a feeling (under investigation) that the sampling for the determination of hygienic parameters is less straightforward than for metals or organic compounds. This could imply that for the hygienic parameters we will not be able to give very concrete instructions only advice. Therefore, it might be necessary to present the sampling for hygienic parameters in a separate document (TR). It would provide information on things to consider / to take into account when sampling for the determination of hygienic parameters and as a consequence would be far less specific than the instructions provided for metals and organics.

## 4. Soils in the landscape

Considerations about sampling soil in the landscape are significantly different from the sampling of treated bio-waste and sludge because the objective for sampling is different (can treated bio-waste and sludge be applied versus determining the environmental quality of treated bio-waste and sludge).
However, the Framework Standard could be applied to soil in the same way that it could be applied to treated biowaste and sludge. A separate TR for soil could give guidance to those parts of the other TRs that are relevant to sampling soil, e.g. statistics, packaging.
In addition the resulting document(s) could provide a basis for renewal of the ISO standard 'Guidance on the procedure for investigation of natural, near-natural and cultivated sites (ISO 10381-4).

## Annex to meeting report: Description of CEN-documents

### Standard (EN):

The European Standard is a normative document made available by CEN in the three official languages. The development of a European Standard includes a public enquiry, followed by an approval by weighted vote of CEN national members and final ratification. The European Standard is announced at national level, published or endorsed as an identical national standard and every conflicting national standard is withdrawn.
The content of a European Standard does not conflict with any other CEN Standard.
A European Standard is periodically reviewed. During the elaboration and whole lifetime of the European Standard, standstill applies.

### Technical Specification (TS):

A Technical Specification is a normative document made available by CEN in at least one of the three official languages.
A Technical Specification is established and approved by a CEN technical body (CEN Technical Committee or BTTF) by a weighted vote of CEN National Members.
The Technical Specification is announced and made available at national level, but conflicting national standards may continue to exist.
A Technical Specification may compete against another Technical Specification with the same scope, but a Technical Specification may not conflict with a European Standard. This implies that an existing Technical Specification shall be withdrawn if the publication of a subsequent EN brings the Technical Specification into conflict with that EN.

### Technical Report (TR):

A Technical Report is an informative document made available by CEN in at least one of the official languages.
A Technical Report is established and approved by a CEN technical body (CEN Technical Committee, Technical Board or BTTF) by a simple majority vote of CEN national members.
During the preparation of the Technical Report or after its adoption, no standstill obligation exists. The obligation at the national level is limited to announcement of the existence of the CEN/TR and conflicting national standards may continue to exist.
Adoption as a national deliverable is optional.
A Technical Report gives information on the technical content of standardization work.
A Technical Report may be established as informative document in cases when it is considered urgent or advisable to provide information to the CEN national members, the European Commission, the EFTA Secretariat or other governmental agencies or outside bodies, on the basis of collected data of a different kind from that which is normally published as an EN.
A Technical Report may include, for example, data obtained from a survey carried out among the CEN national members, data on work in other organizations, or data on the "state-of-the-art" in relation to national standards on a particular subject.

No time limit is specified for the lifetime of Technical Reports, but it is recommended that Technical Reports be regularly reviewed by the responsible technical body to ensure that they remain valid.

### Workshop Agreement (WA):

A CEN Workshop Agreement is a document made available by CEN in at least one of the official languages.
A CEN Workshop Agreement is a technical agreement developed in an open structure, the CEN Workshop (WS), and not in a Technical Committee.
A CEN Workshop Agreement is adopted through consensus, which is reached by the CEN Workshop participants who are responsible for its contents.
For all CEN Workshops, an approved business plan indicating the voluntary contributions of the participants to support the above activities is essential.
During the preparation of a CEN Workshop Agreement or after its adoption, no standstill obligation exists.
The Workshop Agreement is announced and possibly made available at national level, and conflicting national normative documents may continue to exist.
A CEN Workshop Agreement may not conflict with any European normative document, but may compete with any European normative document.
A CEN Workshop Agreement should be valid for a limited duration of 3 years or until its transformation into another deliverable. When 3 years have passed, the CMC should consult the former Workshop participants to see whether a renewal of the publication for a further 3 years is appropriate; if not, the CWA should be withdrawn.

### CEN Guide (CG):

The CEN Guide is an informative document made available by CEN in at least one of the official languages, established and approved by a corporate body of CEN by simple majority vote.
A CEN Guide gives information about standardization principles and policies and guidance to standards writers.
A CEN Guide may be established with a view to serving for instance the purpose of:

- providing technical or administrative orientation to the work of CEN;
- giving advice on how to deal with matters of standardization;
- collecting decisions of a CEN corporate body on specific general questions related to standardization for future equal treatment of such questions.