TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/TR 15310-3

November 2006

ICS 13.030.10

English Version

Characterization of waste - Sampling of waste materials - Part 3: Guidance on procedures for sub-sampling in the field

Caractérisation des déchets - Prélèvement des déchets - Partie 3: Guide relatif aux procédures de sous-échantillonnage sur le terrain

Charakterisierung von Abfall - Probenahme - Teil 3: Verfahren zur Teilprobenahme im Gelände

This Technical Report was approved by CEN on 21 February 2006. It has been drawn up by the Technical Committee CEN/TC 292.

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

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. CEN/TR 15310-3:2006: E

Contents

Foreword

This Technical Report (CEN/TR 15310-3:2006) has been prepared by Technical Committee CEN/TC 292 “Characterization of waste”, the secretariat of which is held by NEN.

This Technical Report has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This Technical Report is one of a series of five, dealing with sampling techniques and procedures, which provide essential information for the application of the EN-Standard:

EN 14899 Characterisation of waste - Sampling of waste materials - Framework for the preparation and application of a Sampling Plan

The principal component of the EN Standard is the mandatory requirement to prepare a Sampling Plan. This EN 14899 standard can be used to:

— produce standardised sampling plans for use in regular or routine circumstances (i.e. the elaboration of daughter/derived standards dedicated to well defined sampling scenarios);

— incorporate specific sampling requirements into national legislation;

— design and develop a Sampling Plan on a case by case basis.

The Technical Reports display a range of potential approaches and tools to enable the project manager to tailor his sampling plan to a specific testing scenario (i.e. a ‘shop shelf’ approach to sampling plan development for waste testing). This approach allows flexibility in the selection of the sampling approach, sampling point, method of sampling and equipment used.

This Technical Report describes procedures for reducing the overall size of the sample in the field, to aid practical transportation of a sample to the laboratory. It does not deal with sub-sampling in the laboratory to provide a test portion or the pre-treatment of samples prior to analysis.

This report does not attempt to provide a definitive procedure for each and every situation that may arise from sampling a given waste type or specific analytical requirement, rather it aims to expose the factors that influence the selection of these practical field activities to ensure the most appropriate procedure is selected for any given sampling scenario. The most appropriate approach, tools, and methodology, in the absence of an existing recognised Sampling Plan, should be chosen on a scenario-specific basis. However, this does not present a barrier to technical innovation, and there is no reason why methodologies other than those detailed in this Technical Report cannot be substituted.

Introduction

Wastes are materials, which the holder discards, or intends or is required to discard, and which may be sent for final disposal, reuse or recovery. Such materials are generally heterogeneous and it will be necessary therefore to specify in the testing programme the amount of material for which the characteristics of interest need to be defined. The testing of wastes allows informed decisions to be made on how they should be treated (or not), recovered or disposed. In order to undertake valid tests, some sampling of the waste is required.

The principal component of the standard EN 14899 is the mandatory requirement to prepare a Sampling Plan, within the framework of an overall testing programme as illustrated in Figure 1 of EN 14899:2005. This standard can be used to:

— produce standardised sampling plans for use in regular or routine circumstances (i.e. the elaboration of daughter/derived standards dedicated to well defined sampling scenarios);

— incorporate specific sampling requirements into national legislation;

— design and develop a Sampling Plan on a case by case basis.

The development of a Sampling Plan within this framework involves the progression through three steps or activities.

1) Define the Sampling Plan;

2) Take a field sample in accordance with the Sampling Plan;

3) Transport the laboratory sample to the laboratory.

This Technical Report provides information to support Key Step 2 of the Sampling Plan process map and elaborates on the range of potential approaches that can be used to reduce the size of a sample in the field to facilitate the appropriate storage and preservation of the sample and ultimately its transportation to the designated analytical facility.

This Technical report describes procedures for reducing the overall size of the sample in the field, to aid practical transportation of a sample to the laboratory. It does not deal with sub-sampling in the laboratory to provide a test portion, or the pre-treatment of samples prior to analysis. Samples dispatched to the laboratory may require additional sub-sampling and/or pre-treatment steps prior to analysis. Some samples may be analysed without additional treatment. Field sub-sampling should be carried out in such a way as to obtain, at all stages, a sample that is representative of the field sample. Specifically this Technical Report supports 4.2.8.2 (Procedures for sub-sampling in the field) of the Framework Standard.

This Technical Report should be read in conjunction with the Framework Standard for the preparation and application of a Sampling Plan as well as the other Technical Reports that contain essential information to support the Framework Standard. The full series comprises:

EN 14899, Characterization of waste - Sampling of waste materials - Framework for the preparation and application of a Sampling Plan.

CEN/TR 15310-1, Characterization of waste – Sampling of waste materials - Part 1: Guidance on selection and application of criteria for sampling under various conditions.

CEN/TR 15310 -2, Characterization of waste – Sampling of waste materials - Part 2 - Guidance on sampling techniques.

CEN/TR 15310 -3, Characterization of waste – Sampling of waste materials – Part 3: Guidance on procedures for sub-sampling in the field.

CEN/TR 15310 -4, Characterization of waste – Sampling of waste materials – Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery.

CEN/TR 15310 -5, Characterization of waste – Sampling of waste materials – Part 5: Guidance on the process of defining the Sampling Plan.

The Technical Reports contain procedural options (as detailed in Figure 2 of EN 14899:2005) that can be selected to match the sampling requirements of any testing programme.

1 Scope

This Technical Report describes procedures for reducing the overall size of the waste materials in the field to aid practical transportation of a sample to the laboratory.

NOTE 1 This Technical Report provides a shop shelf of example sampling techniques that can be selected to meet a wide range of sampling situations. For a specific situation one of the presented procedures may be appropriate.

NOTE 2 The procedures listed in this Technical Report reflect current best practice, but these are not exhaustive and other procedures may be equally relevant.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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*

3 Terms and definitions

For the purposes of this Technical Report the terms and definitions given in EN 13965-1:2004 and EN 13965-2:2004 and the following apply

3.1
aliquot
known amount of a homogeneous material, assumed to be taken with negligible sampling error
[ISO 11074-2]

NOTE This term is usually applied to a liquid.

3.2
composite sample
two or more increments/sub-samples mixed together in appropriate proportions, either discretely or continuously (blended composite sample), from which the average value of a desired characteristic may be obtained
[ISO 11074-2]

3.3
increment
individual portion of material collected by a single operation of a sampling device which will not be analysed / investigated as a single entity, but will be mixed with other increments in a composite sample

NOTE 1 Whenever the portion of material collected by a single operation of a sampling device is analysed individually, the obtained material is called a sample. In such a situation it is essential that the quantity of material fulfils both the criteria for the size of an increment as well as for a sample.

NOTE 2 In some languages the term 'increment' is used without the condition that an increment will never be analysed on its own. For this Technical Report this is however an essential condition in the definition of the term ‘increment’.