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CHARACTERIZATION OF WASTE - SAMPLING OF WASTE MATERIALS - PART 5: GUIDANCE ON THE PROCESS OF DEFINING THE SAMPLING PLAN

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Caractérisation des déchets - Prélèvement des déchets - Partie 5 : Guide relatif au processus d'élaboration d'un plan d'échantillonnage

Charakterisierung von Abfall - Probenahme - Teil 5: Verfahren zur Aufstellung eines Probenahmeplans

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Foreword

This Technical Report (CEN/TR 15310-5:2006) 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 Technical Reports dealing with sampling techniques and procedures, and provides essential information and instructions 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.

In practice, confusion can arise when translating the objective of the testing programme, which is often couched at a relative abstract level (e.g. ‘the waste needs to be assessed to fulfil the demands of waste regulation’) into an unambiguous technical instruction in the Sampling Plan, that will provide data to meet that objective (e.g. ‘the mean concentration of each truck load should comply with a specified concentration level’). This Technical Report attempts to clarify the ‘grey area’ between the definition of an overall testing objectives and the definition of the practical Sampling Plan. It specifically provides guidance on the policy aspects that may be relevant for defining the objective of the testing programme, and how this will define the technical methods that can be used to prepare the Sampling Plan.

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 1 of the Sampling Plan process map and describes the selection of sampling approach that can be used in the recovery of a sample for a wide variety of waste types and arisings. Specifically CEN/TR 15310-1 provides information to support 4.2.7 (select sampling approach) of the Framework Standard. Due consideration and selection of statistical criteria is of key importance in the production of a Sampling Plan as it provides the sole means of ensuring that, wherever possible, the type and number of samples taken will address a clearly identified objective and will provide results that achieve a tolerable level of reliability.

In the process of defining the Sampling Plan (step 1 in Figure 1 of EN 14899:2005), the objective of the testing programme is translated into specific and concrete technical instructions for the sampler. Using these instructions the sampler will take the type and number of samples that are adequate to meet the objective of the testing programme, ultimately providing the decision maker with the required information on the waste material under investigation.

The process of defining the Sampling Plan, which takes into consideration both policy and technical requirements to produce technical instructions to the sampler, is therefore a fundamental step in sampling of a waste material.

In practice, problems arise when translating the objective of the testing programme, which is couched at a relative abstract level (e.g. ‘the waste needs to be assessed to fulfil the demands of waste regulation’) into a technical instruction that corresponds with that same objective (e.g. ‘the mean concentration of each truck load should comply with a specified concentration level’). There is a ‘gap’ between the definition of the need to evaluate the waste material and the technical methods that should be applied in order to make an adequate evaluation possible.