



SLOVENSKI STANDARD
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**Izpostavljenost na delovnem mestu - Meritve prašnosti razsutih materialov - 1. del:
Zahteve in izbira preskusnih metod**

Workplace exposure - Measurement of dustiness of bulk materials - Part 1:
Requirements and choice of test methods

Exposition am Arbeitsplatz - Messung des Staubungsverhaltens von Schüttgütern - Teil
1: Anforderungen und Auswahl der Prüfverfahren

Exposition sur les lieux de travail - Mesure du pouvoir de resuspension des matériaux
pulvérulents en vrac - Partie 1: Exigences and selection des méthodes d'essai

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Workplace exposure - Measurement of dustiness of bulk materials - Part 1: Requirements and choice of test methods

Exposition sur les lieux de travail - Mesure du pouvoir de resuspension des matériaux pulvérulents en vrac - Partie 1:
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Exposition am Arbeitsplatz - Messung des Staubungsverhaltens von Schüttgütern - Teil 1:
Anforderungen und Auswahl der Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 137.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Contents

	Page
Foreword.....	3
Introduction	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	8
4 Principle.....	9
5 General procedures	9
5.1 Condition of the bulk material	9
5.2 Sample and environmental control.....	9
5.3 Taking samples from the bulk material	9
5.4 Moisture content.....	10
5.5 Bulk density.....	10
5.6 Test procedure.....	10
5.7 Replicate tests.....	10
5.8 Reporting	10
6 Choice of test methods	10
6.1 General.....	10
6.1.1 Rotating drum method	11
6.1.2 Continuous drop method.....	11
6.2 Selection of the most appropriate test method	11
7 Evaluation of dustiness	11
8 Test report	12
Annex A (normative) Determination of moisture content.....	13
A.1 Infra red dryer method	13
A.1.1 Principle.....	13
A.1.2 Procedure	13
A.2 Alternative method	13
Annex B (normative) Determination of bulk density of the test material.....	15
B.1 Equipment	15
B.2 Special requirements	15
B.3 Procedure	15
Bibliography.....	16

Foreword

This document (prEN 15051-1:2011) has been prepared by Technical Committee CEN/TC 137 "Assessment of workplace exposure to chemical and biological agents", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document together with prEN 15051-2 and prEN 15051-3 will supersede EN 15051:2006

The major technical changes between this European Standard and the previous edition are as follows:

- a) EN 15051 has been split in three parts (see below);
- b) the test methods given are no longer referred as reference test methods;
- c) the test of equivalence between an alternative (candidate) test method and any of the test methods now given in part 2 and part 3 of this European Standard has been deleted.

This part 1 of EN 15051 *Workplace exposure – Measurement of dustiness of bulk materials* belongs to a series of documents, the other parts of which are the following:

— *Part 2: Rotating drum method;*

— *Part 3: Continuous drop method.*

Parts 2 and 3 give details of two test apparatus and test methods for the reproducible production of dust from a bulk material under standard conditions, and the measurement of the inhalable, thoracic and respirable fractions of this dust, with reference to the existing European Standards, where relevant (see Clause 6).

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Introduction

The control of dust emissions during the handling and transportation of bulk materials is an important consideration in the design and operation of many industrial processes. Excessive airborne dust levels in workplaces are undesirable for several reasons:

- They can cause adverse health effects to the work force.
- Their control can involve the use of costly ventilation and filtration systems.
- They can be costly in terms of product losses.
- They can contaminate machinery and products.

It is advantageous, therefore, for occupational hygienists and process engineers to have accurate information about the propensity of bulk materials to produce airborne dust (the “dustiness” of the bulk material) so that risks can be evaluated, controlled and minimised.

No single method of dustiness testing is likely to represent and reproduce the various types of processing and handling used in industry. Therefore a number of dustiness testing methods are in use in different industries. Different methods use different test apparatus and measuring principles, and express results in different ways. Methods that do not separate the dust cloud produced into the three health-related size fractions - inhalable, thoracic and respirable dust - can serve the needs of manufacturing industry for process and batch control, but give limited information on the health hazard due to the dustiness of the bulk material.

Dustiness is a relative term and the measurement obtained will depend on the test apparatus used, the condition and properties of the tested bulk material and various environmental variables. The test and the variables therefore need to be closely specified to ensure reproducibility. Recognising the above it was concluded that there was a need for standardised methods to measure the dustiness of bulk materials, based on the biologically relevant aerosol fractions defined in EN 481.

This part 1, together with part 2 and part 3, of this European Standard establishes test methods that classify the dustiness, in terms of health-related fractions, of solid bulk materials. The dustiness classification is intended to provide users (e.g. manufacturers, producers, occupational hygienists and workers) with information on the potential for dust emissions when the bulk material is handled or processed in workplaces. It provides the manufacturers of bulk materials with information that can help to improve their products. It allows the users of the bulk materials to assess the effects of pre-treatments, and also to select less dusty products, if available. Although this document does not discuss the analysis of dust released from bulk materials (except in terms of health-related fractions), the test method produce samples with the potential for chemical analysis of the contents.

If methods to evaluate dustiness for bulk materials handled in other ways, are deemed of importance, CEN/TC 137 could be approached for adopting a new work item, e.g. more specific industrial handling procedures.

The level of the dustiness generally depends on material-specific and process-specific parameters. The most important material-specific parameters are

- the particle size distribution of the bulk material,
- its bulk density,
- its moisture content ("bulk material moisture content"),
- its chemical composition,