

Agricultural machinery — Slurry tankers and spreading devices — Environmental protection — Requirements and test methods for the spreading precision

The European Standard EN 13406:2002 has the status of a
British Standard

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National foreword

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English version

**Agricultural machinery - Slurry tankers and spreading devices -
Environmental protection - Requirements and test methods for
the spreading precision**

Matériel agricole - Epandeurs de lisier et dispositifs
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et méthodes d'essai pour la précision d'épandage

Landmaschinen - Flüssigmisttankwagen und
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Prüfmethoden für die Verteilgenauigkeit

This European Standard was approved by CEN on 2 October 2002.

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

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

Contents

Foreword.....3

Introduction 4

1 **Scope** 5

2 **Terms and definitions**.....5

3 **Requirements** 6

4 **Verification**.....7

5 **Instruction handbook** 15

6 **Test report** 16

Annex A (normative) Characterisation and determination of physical properties of slurry 17

Annex B (informative) Filtering of data collected in the longitudinal distribution tests 21

Bibliography 23

Foreword

This document EN 13406:2002 has been prepared by Technical Committee CEN /TC 144, "Tractors and machinery for agriculture and forestry", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2003, and conflicting national standards shall be withdrawn at the latest by May 2003.

Annex A is normative and gives information on a method for the characterisation and determination of physical properties of slurry.

Annex B is informative.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The objective of this standard is to specify test methods and requirements that, as far as possible, allow uniform testing and evaluation of slurry tankers.

The methods and requirements aim at evaluating the slurry tankers and the spreading devices regarding the user's ability, when he uses the machine according to the manufacturer instruction handbook, to:

- $\frac{3}{4}$ control the application rate;
- $\frac{3}{4}$ attain an even distribution of the slurry;
- $\frac{3}{4}$ reduce the load on the external environment, for example by not unintentionally spreading slurry outside the target area.

It should be noted that there is often a great number of varieties of a machine type and also varieties of spreading device. This should be considered when selecting the machine configuration for the tests, with the aim of reducing the necessary number of machines to be tested.

This standard is developed for the evaluation of a complete machine (through transverse and longitudinal tests). The standard can also be used for testing a single piece of the equipment in the form of a spreading device only (transverse tests and pressure/flow measurements) or a tanker only (longitudinal tests and pressure/flow measurements).

1 Scope

This European Standard specifies test methods and requirements for the design and construction of slurry tankers for broadcasting and band spreading of slurry in agriculture and horticulture with the intention of minimising the environmental damage.

It specifies requirements for the transverse and longitudinal spreading characteristics such as working widths, characteristic application rate, characteristic flow and the stretch within the tolerance zone.

NOTE The application of this standard alone will not be sufficient to deal with all the environmental aspects. Other aspects such as ammonia emission, odour reduction etc. should be considered.

These requirements are valid only according to the tests with slurry as described in Table A.1.

Personal safety aspects have not been considered in this standard. These aspects are covered by EN 707.

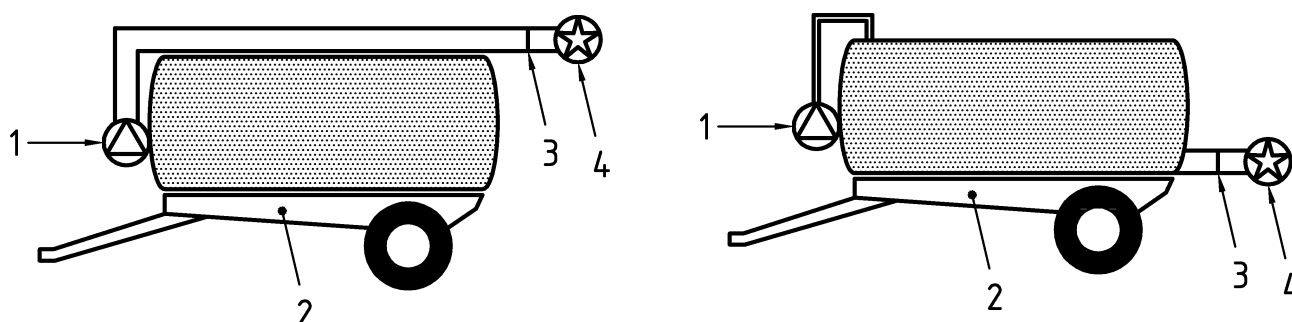
2 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

2.1

slurry tanker

machine for handling, transporting and distributing slurry



Key

- 1 Pump or compressor
- 2 Tank
- 3 Connection point
- 4 Spreading device

a) Mechanically powered slurry tanker

b) Pneumatically powered slurry tanker

Figure 1 — Basic components of a slurry tanker

2.2

broadcasting spreading device

device intended to distribute the slurry over the field surface

2.3

band spreading device

device intended to distribute the slurry in bands separated by bands with no slurry over the field surface or in the soil

2.4

working width

distance between the centre of two adjacent bouts

2.5

throwing width

distance between the left and the right end of a transverse distribution

2.6

unloading time

time needed to empty the first 95 % of the mass of slurry spread

2.7

characteristic flow

average flow calculated over a specified part of the unloading time

NOTE In the case of slurry tankers, this specified part equals 100 % of the unloading time, i.e. the characteristic flow will be equal to the average flow.

2.8

characteristic application rate

application rate calculated on the basis of characteristic flow, working width and forward speed

2.9

tolerance zone

interval of flows within – 15 % and + 15 % of the characteristic flow

2.10

stretch within the tolerance zone

percentage of the unloading time during which the momentary flows lie within the tolerance zone

2.11

unidirectional distribution

distribution obtained when the slurry tanker moves for two adjacent bouts in the same direction

2.12

"to and fro" distribution

distribution obtained when the slurry tanker moves for two adjacent bouts in opposite direction

3 Requirements

3.1 General

The requirements in this standard are based on the selection of slurry for the tests as described in 4.1.2.

3.2 Transverse distribution

3.2.1 Broadcasting spreading devices – Working widths

The tested unit shall, for a specific setting, have at least one working width so that the coefficient of variation (*CV*) is lower than 20 % and wider than the half of the throwing width when simulating unidirectional distribution and/or "to and fro" distribution.

The *CV* shall be calculated according to 4.3.1.1 and the throwing width shall be limited to the total width of adjacent collecting containers as far as the container which is adjacent to three adjacent containers containing less than 50 g of slurry.

The test shall be completed in accordance with 4.2.1 and the requirement shall be fulfilled for the settings of flows defined in 4.2.1.3 with slurry selected as specified in 4.1.2.

If the requirement is not met for one of the settings, one additional test shall be completed with that same setting and with slurry selected as specified in 4.1.2 to check the lack of temporary default; this shall be noted in the test report. The calculated *CV* for this additional test shall then be lower than 20 %.