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Agricultural and forestry machinery - Environmental
requirements and testing for sprayers - Part 2:
Horizontal boom sprayers (ISO 16119-2:2013)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 16119-2:2013 sisaldab Euroopa standardi EN ISO 16119-2:2013 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 16119-2:2013 consists of the English text of the European standard EN ISO 16119-2:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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EUROPEAN STANDARD

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English Version

Agricultural and forestry machinery - Environmental requirements for sprayers - Part 2: Horizontal boom sprayers (ISO 16119-2:2013, Corrected version 2017-03)

Matériel agricole et forestier - Exigences environnementales pour les pulvérisateurs - Partie 2: Pulvérisateurs à rampe horizontale (ISO 16119-2:2013, Version corrigée 2017-03)

Land- und Forstmaschinen - Pflanzenschutzgeräte zum Ausbringen von Pflanzenschutzmitteln und flüssigen Düngemitteln - Umweltschutz - Teil 2: Feldspritzgeräte und vergleichbare Geräte (ISO 16119-2:2013, korrigierte Fassung 2017-03)

This European Standard was approved by CEN on 5 January 2013.

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

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Foreword

This document (EN ISO 16119-2:2013) has been prepared by Technical Committee CEN/TC 144 "Tractors and machinery for agriculture and forestry", the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 23 "Tractors and machinery for agriculture and forestry".

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of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12761-2:2001.

The following major changes were introduced:

- extension of the scope;
- updating of the normative references;
- addition of a Clause "List of significant hazards";
- revision of requirements on control of spray drift and on cleaning;
- addition of a Clause "Verification";
- completion of Clause "Instruction handbook";
- deletion of Annex A "Test method for cleaning plant protection product cans", and deletion of Annex B "Example of device for cleaning of plant protection product cans" and addition of a reference to ISO 21278-1;
- inclusion of Annex C "Additional requirements for band sprayers" into the main text of the Standard;
- addition of Annex ZA.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 16119-2:2013, Corrected version 2017-03 has been approved by CEN as EN ISO 16119-2:2013 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 144, *Tractors and machinery for agriculture and forestry*, in collaboration with ISO Technical Committee TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 6, *Equipment for crop protection*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This corrected version of ISO 16119-2:2013 incorporates the following corrections:

- ISO 22401 has been added to Clause 2;
- ISO 22369-3 has been replaced by ISO 22401 in the last paragraph of 5.3.2;
- ISO 22401 has been added to the last column of Table 3, row 5.3.2;
- ISO 22369-3 has been removed from the Bibliography.

A list of all parts in the ISO 16119 series can be found on the ISO website.

Introduction

The requirements of this part of ISO 16119 are based on the test methods given in ISO 5682-2:1997, which were primarily developed for hydraulic sprayers. For other types of sprayers, other test methods and/or test criteria may be needed and may be the subject of future investigation and a revision of this part of ISO 16119.

This document is a type C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

Agricultural and forestry machinery — Environmental requirements for sprayers —

Part 2: Horizontal boom sprayers

1 Scope

This part of ISO 16119 specifies requirements and the means for their verification for the design and performance of horizontal boom sprayers, as defined in 3.1, with regard to minimizing the potential risk of environmental contamination during use, including misuse foreseeable by the manufacturer.

It is intended to be used with ISO 16119-1, which gives general requirements common to all the sprayer types covered by ISO 16119. When requirements of this part of ISO 16119 are different from those which are stated in ISO 16119-1, the requirements of this part of ISO 16119 take precedence over the requirements of ISO 16119-1 for machines within the scope of this part of ISO 16119. It does not cover safety aspects (see ISO 4254-6).

This part of ISO 16119 is not applicable to sprayers manufactured before the date of its publication.

2 Normative references

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

ISO 4102, *Equipment for crop protection — Sprayers — Connection threading*

ISO 4254-6:2009, *Agricultural machinery — Safety — Part 6: Sprayers and liquid fertilizer distributors*

ISO 4288, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*

ISO 5681, *Equipment for crop protection — Vocabulary*

ISO 5682-1, *Equipment for crop protection — Spraying equipment — Part 1: Test methods for sprayer nozzles*

ISO 5682-2:1997, *Equipment for crop protection — Spraying equipment — Part 2: Test methods for hydraulic sprayers*

ISO 5682-3:1996, *Equipment for crop protection — Spraying equipment — Part 3: Test method for volume/hectare adjustment systems of agricultural hydraulic pressure sprayers*

ISO 9357, *Equipment for crop protection — Agricultural sprayers — Tank nominal volume and filling hole diameter*

ISO 13440:1996, *Equipment for crop protection — Agricultural sprayers — Determination of the volume of total residual*

ISO 16119-1:2013, *Agricultural and forestry machinery — Environmental requirements for sprayers — Part 1: General*

ISO 21278-1, *Equipment for crop protection — Induction hoppers — Part 1: Test methods*

ISO 21278-2, *Equipment for crop protection — Induction hoppers — Part 2: General requirements and performance limits*

ISO 22368-1, *Crop protection equipment — Test methods for the evaluation of cleaning systems — Part 1: Internal cleaning of complete sprayers*

ISO 22368-3, *Crop protection equipment — Test methods for the evaluation of cleaning systems — Part 3: Internal cleaning of tank*

ISO 22369-2:2010, *Crop protection equipment — Drift classification of spraying equipment — Part 2: Classification of field crop sprayers by field measurements*

ISO 22401, *Equipment for crop protection — Method for measurement of potential spray drift from horizontal boom sprayers by the use of a test bench*

ISO 22856, *Equipment for crop protection — Methods for the laboratory measurement of spray drift — Wind tunnels*

ISO 22866, *Equipment for crop protection — Methods for field measurement of spray drift*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5681 and the following apply.

3.1

horizontal boom sprayer

machine for spraying plant protection products, along a boom or in bands, with a spray generally directed downwards onto/into the target

3.2

plant protection product container

collective name for plant protection product packaging

EXAMPLE Can, bottle, bag, sack, box.

3.3

cleaning device

device for cleaning the insides of empty plant protection product containers

Note 1 to entry: The device may be an integral part of the sprayer or an independent installation (e.g. stationary equipment).

4 List of significant hazards

[Table 1](#) specifies the significant hazards, the significant hazardous situations and significant hazardous event(s) covered by this part of ISO 16119 that have been identified by risk assessment as being relevant for this type of machine with regard to environmental contamination, and which require specific action by the designer or manufacturer to eliminate or to reduce environmental contamination.

Attention is drawn to the necessity to verify that the environmental requirements specified in both ISO 16119-1 and this part of ISO 16119 apply to each significant hazard presented by a given machine and to validate that the risk assessment is complete.