

ISO/FDIS\_16119-5:2022(E)

ISO/TC\_23/SC\_6/AVG\_20

Secretariat: AFNOR

Date: 2023-07-26

## Agricultural and forestry machinery — Environmental requirements for sprayers —

### Part 5: Aerial spray systems

*Matériel agricole et forestier — Exigences environnementales pour les pulvérisateurs —*

*Partie 5: Système aérien de pulvérisation*

FDIS stage

ISO/FDIS\_16119-5:2022-2023(E)

© ISO 2021-2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

iTeh Standards  
(<https://standards.itih.ai>)  
Document Preview

ISO 16119-5

<https://standards.itih.ai/catalog/standards/sist/2912d34d-2ee1-47be-9d93-b27d7ea92364/iso-16119-5>

**Contents**

<b>Foreword</b> .....	v
<b>Introduction</b> .....	vi
<b>1 Scope</b> .....	1
<b>2 Normative references</b> .....	1
<b>3 Terms and definitions</b> .....	2
<b>4 List of significant hazards</b> .....	2
<b>5 Requirements</b> .....	3
<b>5.1 General</b> .....	3
<b>5.2 Sprayer tanks</b> .....	3
<b>5.2.1 Materials</b> .....	3
<b>5.2.2 Tank openings</b> .....	3
<b>5.2.3 Emptying</b> .....	4
<b>5.2.4 Tank contents indicator(s)</b> .....	4
<b>5.2.5 Agitation</b> .....	4
<b>5.2.6 Filling pre-mix tank</b> .....	4
<b>5.3 Hoses and lines</b> .....	5
<b>5.4 Spray boom</b> .....	5
<b>5.4.1 Design and location</b> .....	5
<b>5.4.2 Adjustment</b> .....	5
<b>5.5 Safety measures</b> .....	5
<b>5.6 Filters</b> .....	6
<b>5.7 Nozzles/atomizers</b> .....	6
<b>5.8 Measuring systems</b> .....	6
<b>5.8.1 General</b> .....	6
<b>5.8.2 Provisions for connecting test equipment</b> .....	7
<b>5.9 Volume/area adjustment system</b> .....	7
<b>5.10 Distribution and control of spray drift</b> .....	8
<b>5.10.1 Distribution</b> .....	8
<b>5.10.2 Control of spray drift</b> .....	8
<b>5.10.3 Swathe marking/mapping</b> .....	8
<b>5.11 Cleaning</b> .....	8
<b>5.11.1 Cleaning devices at the sprayer</b> .....	8
<b>5.11.2 Water tanks</b> .....	8
<b>6 Instruction handbook/Operator’s manual</b> .....	9
<b>7 Markings</b> .....	9
<b>Annex A (informative) Guidelines, aerial deposition models and nozzle drop size category websites</b> .....	10
<b>Bibliography</b> .....	13

ISO/FDIS 16119-5:2022/2023(E)

Foreword	iv
Introduction	v
1	Scope 1
2	Normative references 1
3	Terms and definitions 2
4	List of significant hazards 2
5	Requirements 3
5.1	General 3
5.2	Sprayer tanks 3
5.2.1	Materials 3
5.2.2	Tank openings 3
5.2.3	Emptying 4
5.2.4	Tank contents indicator(s) 4
5.2.5	Agitation 4
5.2.6	Filling pre-mix tank 4
5.3	Hoses and lines 4
5.4	Spray boom 5
5.4.1	Design and location 5
5.4.2	Adjustment 5
5.5	Safety Measures 5
5.6	Filters 5
5.7	Nozzles/atomizers 6
5.8	Measuring systems 6
5.8.1	General 6
5.8.2	Provisions for connecting test equipment 6
5.9	Volume/area adjustment system 6
5.10	Distribution and control of spray drift 7
5.10.1	Distribution 7
5.10.2	Control of spray drift 7
5.10.3	Swathe marking/mapping 7
5.11	Cleaning 8
5.11.1	Cleaning devices at the sprayer 8
5.11.2	Water tanks 8
6	Operator's Manual 8
7	Markings 8
Annex A (informative)	Guidelines, aerial deposition models and nozzle drop size category websites 10
Annex ZA (informative)	Relationship between this European Standard and the essential requirements of Directive 2006/42/EC amended by Directive 2009/127/EC aimed to be covered 11
Bibliography	13

iTeh Standards  
(<https://standards.itih.ai>)  
Document Preview

ISO 16119-5

<https://standards.itih.ai/catalog/standards/sist/2912d34d-2ee1-47be-9d93-b27d7ea92364/iso-16119-5>

## 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/document 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](http://www.iso.org/directives)).

~~Attention is drawn~~ISO draws attention to the possibility that ~~some of the elements~~implementation of this document may ~~be involve~~ the ~~subject~~use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights. ~~Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).~~

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

For an explanation of the voluntary nature of standards, 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html)[www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html)[www.iso.org/members.html](http://www.iso.org/members.html).

Field Code Changed

## Introduction

Significant areas are sprayed globally by fixed wing and rotary aircraft in order to overcome serious pest threats to agriculture and forestry. Aerial application is used where difficult terrain or crop (forests) dictate as well as for timely application to large areas, in order to maximize efficient use of crop protection products and minimize environmental impact. This document specifies requirements and methods for verification, design and performance which are often unique from other sprayer equipment. This does not cover aircraft safety and design criteria for air worthiness and aircraft registration nor pilot or operator requirements all of which will be specified separately by countries or regions. Industry stakeholders such as the USA National Agricultural Aviation Association (NAAA) and their partner National Agricultural Aviation Research and Education Fund have provided input to the development

This document is a type-C standard as stated in ~~EN~~ ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

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