

ICS 65.060.40

CCS B 91



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 20183.2-2024

Replacing GB/T 20183.2-2006

**Equipment for crop protection - Spraying equipment - Part 2:
Test methods to assess the horizontal transverse distribution
for hydraulic sprayers**

植物保护机械 喷雾设备 第2部分：评价液力喷雾机水平横向分布的试验方法
(English Translation)

Issued on: April 25, 2024

Implemented on: November 1, 2024

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents"

Drafting:

This document is part 2 of GB/T 20183 "Mechanical spray equipment for plant protection":
GB/T 20183 has published the following part:

- Part 1: Test methods for spray nozzles;
- Part 2: Test method for evaluating the horizontal lateral distribution of hydraulic sprayers;
- Part 3: Test method for evaluating the performance of the system for regulating the amount of liquid applied per unit area:

This document replaces GB/T 20183.2-2006 "Mechanical spray equipment for plant protection - Part 2: Test methods for hydraulic sprayers":

Compared with GB/T 20183.2-2006, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The scope has been changed (see Chapter 1, Chapter 1 of the:2006 edition);
- b) The term and definition of "reference liquid level" have been deleted (see 3.1 of the:2006 edition);
- c) The characteristics of the mist collecting trough and the requirements for the upper part of the trough wall have been changed (see Chapter 4, 5:2:1 and 5:2:2 of the:2006 edition);
- d) The requirements for measurement accuracy have been changed (see Chapter 4, Chapter 6 of the:2006 edition);
- e) The requirements for test conditions have been changed (see Chapter 5, Chapter 7 of the:2006 edition);

- f) The test method for measuring the volume of spray liquid to evaluate the lateral distribution of the spray liquid has been changed (see 6.3, 8:4 of the:2006 edition);
- g) Added a test method for measuring nozzle pressure to evaluate the lateral distribution of spray volume (see 6.6);
- h) The requirements for nozzle position have been changed (see 6.4, 8:3:3 of the:2006 edition);
- i) Deleted the requirements for pressure loss of spray pipe, flow rate of pump, flow rate of tank filling device, capacity of tank, stirring, etc:

(See 8.5, 8:6, 8:7, 8:8, and 8:9 of the:2006 edition):

This document is equivalent to ISO 5682-2:2017 "Plant protection mechanical spray equipment - Part 2: Evaluation of the horizontal Experimental Methods for Directional Distribution:

Introduction

GB/T 20183 "Mechanical spray equipment for plant protection" is intended to describe the test methods for mechanical spray equipment for plant protection: It is planned to consist of four parts:

Grouped into:

--- Part 1: Test method for spray nozzles for sprayers: The purpose is to describe the test method for the spray accuracy of hydraulic nozzles for sprayers:

--- Part 2: Test methods for evaluating the horizontal lateral distribution of hydraulic sprayers: The purpose is to describe three test methods to evaluate the horizontal lateral distribution of hydraulic sprayers:

Horizontal distribution of the amount of pesticide applied by the same type of sprayers:

--- Part 3: Test method for evaluating the performance of the system for regulating the amount of liquid applied per unit area: The purpose is to describe the amount of liquid applied per unit area:

Test conditions, test methods and calculation methods for quantity regulation systems:

--- Part 4: Test method for stirring the liquid tank: The purpose is to describe the performance of the stirring system in the liquid tank of plant protection machinery:

Methods:

Mechanical spray equipment for plant protection Part 2: Evaluation of hydraulic sprayers
Test method for horizontal lateral distribution

1 Scope

This document describes a test method for evaluating the horizontal lateral distribution of the spray volume: The method is based on the measurement of the spray liquid volume, the nozzle flow rate and the the amount or pressure measurement at the nozzle:

This document applies to the production and testing of sprayers that spray liquids on a horizontal surface: Sprayers have specific characteristics in terms of how they deliver and control the spray:

All three test methods can be used and the measurement results are complementary:
Some test methods are not applicable to all types of sprayers:

Applicable test methods are described:

This document does not apply to aviation aerosol sprayers:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document:

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document:

GB/T 20183.1-2024 Mechanical spray equipment for plant protection Part 1: Test methods for sprayer nozzles (ISO 5682-1:

2017, IDT)

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 5681 apply:

4: Measuring device

The measuring device shall comply with the requirements of Chapter 4 of GB/T 20183.1-2024:

The horizontal fog liquid distribution test bench shall comply with the requirements of 4:2 in GB/T 20183.1-2024:

For the horizontal fog liquid distribution test bench composed of fog collecting grooves with a spacing of 50mm or 25mm, place two or four adjacent collecting grooves:

The fog trough is regarded as a 100mm fog collecting trough:

When measuring small flow rates and cannot be measured directly using a flow meter, the

volume of the spray liquid collected during the test time can be measured:

5 Test conditions

5.1

General requirements the sprayer should be operated in accordance with the manufacturer's instructions: All test conditions and parameters should be stated in the test report: