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

GB/T 45789-2025

**Crop protection equipment - Droplet-size spectra from
atomizers - Measurement and classification**

植物保护机械 雾化器雾滴谱 测量与分级

(English Translation)

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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 equivalent to ISO 25358:2018 "Measurement and classification of droplet spectra of mechanical atomizers for plant protection".

Introduction

Measurement and classification of droplet spectra for the application of pesticides and other chemicals helps characterize the spray plume, thereby improving application effectiveness and spray drift.

manage.

Most atomizers will produce droplet spectra, which will vary under different operating conditions.

Different laboratories and measurement systems will produce different absolute values for a given droplet size. The main reason for the difference is usually sampling results, dynamic size range capability, data handling and reporting. Some of these differences can be minimized by using appropriate sampling techniques.

However, the absolute value of the droplet spectrum still has discrete differences between measurement systems, especially the spatial particle size distribution (at the sampling interval the particle size distribution of droplets within a given spatial volume without significant changes within a given time interval) and the temporal particle size distribution (the number of droplets passing through the sampling area within a given time interval) the droplet size distribution (counting each droplet and measuring the size) leads to sampling differences.

This document uses standardized terminology to describe droplet spectra, including the

use of reference streams to define reference types, in order to improve the compatibility of different measurement systems and implementations.

The relative consistency between laboratories in the measurement and classification of droplet spectra.

Each measuring device should use this document to determine the reference type that is appropriate for it (one set per measurement system and sampling method) and then use the measured plumes are classified using the same measurement and sampling procedures as the corresponding reference plumes.

Reference curves based on instrumentation and sampling techniques cannot be used to classify fog plumes from different measurement sources.

Droplet spectrum classification can also provide users with applicable information.

Plant protection mechanical atomizer droplet spectrum Measurement and grading

1 Scope

This document specifies the measurement and classification procedures for droplet spectra of atomizers used for plant protection and provides a reference system for determining the categories of droplet spectra.

Depending on their functional principle and specific setup, droplet size measurement systems may give different results.

The method can compare the droplet spectrum of a measured quantity with the reference spectrum, and can also make a relative comparison of the droplet spectra obtained by different measurement systems.

2 Normative references

The contents of the following documents constitute 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.

Note: GB/T 20085-2024 Vocabulary of plant protection machinery (ISO 5681:2020, MOD) ISO 5682-1 Mechanical spray equipment for crop protection - Part 1: Test methods for sprayer nozzles
Note. 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 defined in ISO 5681 and the following apply.

ISO and IEC maintain terminology databases used for standardization at the following URLs.

Droplet size class

The range between two reference droplet spectra.

The droplet spectrum defining the boundary between two droplet size classes (3.1) is measured by spraying a reference nozzle/pressure combination with filtered clean water.

Clean water obtained.

Dv0.x

The volume of the sampled droplets is accumulated in order of droplet size, and the cumulative value is the droplet diameter corresponding to 0.x of the total volume of the sampled droplets.

volume median diameter the volume of the sampled droplets is accumulated in order of droplet size, and the cumulative value is the droplet diameter corresponding to 50% of the total volume of the sampled droplets.