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

MH/T 1002.1-2016

Replacing MH/T 1002.1-1995

**Quality indexes of agricultural aviation operation. Part 1:
Spraying operation
(English Translation)**

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Foreword

MH/T 1002 "Agricultural Aviation Operation Quality Technical Index" is divided into two parts.

--Part 1: Spraying operation;

--Part 2: Broadcasting operations.

This part is part 1 of MH/T 1002.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces and abolishes MH/T 1002.1-1995 "Agricultural Aviation Operation Quality Technical Index Spray Operation", and MH/T 1002.1-Compared with 1995, the main technical changes are as follows.

-Modified the scope of this part (see Chapter 1, Chapter 1 of the 1995 edition);

-Added "Normative Reference Documents" (see Chapter 2);

--Added "spray rate", "permissible error of spray rate", "droplet distribution uniformity", "volume median diameter", "quantity" Terms and definitions such as "median diameter" and "droplet spectrum width" have been deleted, and terms and definitions such as "spray width" and "spray rate" have been deleted;

(See Chapter 3, Chapter 2 of the 1995 edition);

--Modified and simplified the "allowable error of spraying amount", "droplet coverage

density", "droplet distribution uniformity", "droplet diameter" and other technical indicators, the technical indicators of "fog droplet spectrum width" have been added (see Chapter 4, Chapter 3 of the 1995 edition);

--Added "Sampling" and "Spray rate error measurement", "Mist droplet coverage density and distribution uniformity measurement", "Mist drop diameter and the content of measurement methods such as the measurement of droplet spectrum width (see Chapter 5);

-Added the content of "Report" (see Chapter 6);

-Change the names of Appendix A and Appendix B to "droplet diameter of different spray objects" and "droplet coverage density of different spray objects", the technical indicators of the original standard "droplet size" and "droplet coverage density" are included in Appendix A and Appendix B (see Appendix A and Appendix B, Chapter 3 of the 1995 edition);

--Added reports of "spray rate error", "droplet coverage density and distribution uniformity", "droplet diameter and droplet spectrum width" Single (see Appendix C);

-Added "References".

This part was proposed by the Transportation Department of the Civil Aviation Administration of China.

This part was approved by the Aircraft Airworthiness Certification Department of the Civil Aviation Administration of China.

This part is under the jurisdiction of the China Academy of Civil Aviation Science and Technology.

Drafting organization of this section. The Second Research Institute of Civil Aviation Administration of China.

1 Scope

This part of MH/T 1002 specifies the technical indicators and measurement methods for the quality of aircraft spraying operations.

This section applies to aircraft equipped with spray systems for constant, low volume and ultra-low volume spraying operations. Use other types of aircraft to enter Line spraying operations can refer to this section.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

MH/T 1031-2010 Specification for performance testing of agricultural aircraft spraying equipment
MH/T 1040-2011 Measurement of spraying rate and distribution pattern of aviation spraying equipment

3 Terms and definitions

The following terms and definitions apply to this document.

Conventional spray

Spraying operations with a spray volume of not less than 30 L per hectare.

Note: Rewrite MH/T 0017-1998, definition 3.15.

Low volume spray

Spraying operations where the spray volume per hectare is greater than 5 L but less than 30 L.

Note: Rewrite MH/T 0017-1998, definition 3.16.

Ultra low volume spray Spraying operations where the spray volume per hectare is not more than 5 L.

Note: Rewrite MH/T 0017-1998, definition 3.17.

Application rate

The amount of spray on the unit area of the treatment object.

Note 1: Rewrite MH/T 0017-1998, definition 3.10.

Note 2: The unit of spray rate is liter per hectare (L/hm²).

Permissible error of application rate the maximum allowable deviation of the actual spray rate from the predetermined spray rate.

Note: The allowable error of spray rate is expressed in percentage.

Coverage density of droplets the number of droplets per unit area of the processing object.

Note 1: Rewrite MH/T 0017-1998, definition 8.12.

Note 2: The coverage density of droplets is expressed by the number of droplets per square centimeter.

Uniformity of deposits distribution the uniformity of the droplet distribution in the spray range.

Note 1: Rewrite MH/T 0017-1998, definition 8.13.

Note 2: The uniformity of droplet distribution is usually expressed by the coefficient of variation of droplet coverage density or deposition amount.

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

[MH/T 0017-1998, definition 3.12.4] Note. The volume median diameter is expressed in microns (μm).

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

[MH/T 0017-1998, definition 3.12.3] Note. The median diameter of the quantity is expressed in microns (μm).

3.10

Droplet size spectrum the uniformity of the droplet size distribution.

Note 1: Rewrite MH/T 0017-1998, definition 3.13.

Note 2: Usually the ratio of volume median diameter to number median diameter (VMD/NMD), or the difference between 90% cumulative volume diameter and 10% cumulative volume diameter, and the ratio of the volume median diameter is expressed.

4 Technical indicators of operation quality

The quality and technical indicators of constant, low-volume, and ultra-low-volume spraying operations are shown in Table 1. The droplet diameter and droplet coverage density of different spraying objects Please refer to appendix A and appendix B.

5.1 Sampling

5.1.1

For sampling conditions, see 6.6.1 in MH/T 1031-2010.

5.1.2

For sampling line setting and sampling method, see 6.6.2 in MH/T 1031-2010.

5.2 Measurement of spray rate error

Calculate the actual spray rate according to the methods specified in 4.2.1 and 4.6 in MH/T 1040-2011, and calculate the spray rate error according to formula (1).

5.3 Measurement of fog droplet coverage density and distribution uniformity

Use an optical microscope, computer image analysis system or other professional instruments to observe the sampling piece, the measuring instrument used and the