

ASABE/ISO 14269-4:1997 (SEP2006) (R2017)

Tractors and self-propelled machines for agriculture and forestry — Operator enclosure environment —
Part 4: Air filter element test method



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Tractors and self-propelled machines for agriculture and forestry — Operator enclosure environment — Part 4: Air filter element test method

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0 Foreword

0.1 ASABE/ISO 14269-4:1997, Tractors and self-propelled machines for agriculture and forestry-Operator enclosure environment — Part 4: Air filter element test method, is an adoption without modification of the identically titled ISO standard ISO 14269- 4:1997, Tractors and self-propelled machines for agriculture and forestry — Operator enclosure environment — Part 4: Air filter element test method.

This ISO standard is a derivative of SAE J1503, Performance Test for Air-Conditioned, Heated, and Ventilated Off-Road Self-Propelled Work Machines.

0.2 ASABE/ISO 14269-4 specifies a uniform test method for determining performance levels of operator enclosure panel-type air filters. It is applicable to tractors and self-propelled machines for agriculture and forestry when equipped with an operator enclosure with a ventilation system.

0.3 Two normative references are listed in ISO 14269-4:1997. These references have been reviewed and accepted as part of the adoption of ASABE/ISO 14269-4:1997.

0.4 This standard had been approved as an American National Standard by ANSI (American National Standard Institute).

Text of ISO 14269-4:1997, Tractors and self-propelled machines for agriculture and forestry-Operator enclosure environment — Part 4: Air filter element test method, follows.

1 Scope

This part of ISO 14269 specifies a uniform test method for determining performance levels of operator enclosure panel-type air filters. It is applicable to tractors and self-propelled machines for agriculture and forestry when equipped with an operator enclosure with a ventilation system.



2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 14269. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 14269 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5011:1988, Inlet air cleaning equipment for internal combustion engines and compressors — Performance testing.

ISO 14269-1:1997, Tractors and self-propelled machines for agriculture and forestry — Operator enclosure environment — Part 1: Vocabulary.

3 Definitions

For the purposes of this part of ISO 14269, the definitions given in ISO 14269-1 apply, of which the following are particularly relevant.

3.1 operator enclosure air filter element: Medium in which particulate matter is removed from the incoming air supply. [ISO 14269-1:1997, definition 2.15]

3.2 filter efficiency: Ability of the air filter element to remove particulate matter. [ISO 14269-1:1997, definition 2.16]

3.3 test dust: Particulate matter used to evaluate the filter element. [ISO 14269-1:1997, definition 2.17]

4 Air filter element performance test

The test shroud configurations for the operator enclosure filter comparison tests are given in 4.1.1 and Figure 1. This test procedure also designates a recommended intake velocity for the dust mixing chamber. (See ISO 5011:1988, Figure 2.)

4.1 Test equipment and instruments

4.1.1 Test equipment in accordance with Figure 2, used to determine the resistance to air flow, particulate holding capacity, particulate removal efficiency, and sealing characteristics. For element configurations other than panel type, see ISO 5011.

4.1.2 Dust metering device in accordance with Figure 3 which, when used with the dust injector (Figure 4), is capable of metering dust over the range of delivery rates required. This dust feed system shall not change the primary particle size distribution of the particulate. The average delivery rate shall be within 5% of the desired rate and the deviation in the instantaneous delivery rate from the average shall be no more than 5%.

4.2 Test conditions and material

4.2.1 All air flow measurements are to be corrected to a standard condition of 25°C at 100 kPa.

4.2.2 Test dust shall be standardized and shall be of two grades labelled fine and coarse. For typical particle size distribution and chemical composition, refer to Tables 1, 2 and 3.

It is difficult to select a test dust size distribution and concentration which will be representative of all service conditions; therefore, based primarily on practical considerations, the concentration shall be 1 g/m³ for coarse and fine dusts (1 g/m³ is generally accepted as zero visibility conditions).