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GB/T 24135-2022 / ISO 1419:2019

Replacing GB/T 24135-2009

Rubber- or Plastics-Coated Fabrics – Accelerated-Aging Tests

(ISO 1419:2019, IDT)

橡胶或塑料涂覆织物 加速老化试验

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Standardization Administration of the People's Republic of China.

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 *Directives for Standardization – Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This Document replaced GB/T 24135-2009 *Rubber- or Plastics-Coated Fabrics - Accelerated-Ageing Tests*. Compared with GB/T 24135-2009, the major technical changes of this Document are as follows besides editorial modifications:

--- Change the English abbreviation "PVC" of the material to "polyvinyl chloride" in Chinese (see Clause 4, 4.1 and 7.1 of this Edition; Clause 3, 3.1 and 6.1 of the 2009 Edition);

--- Add "procedures shall comply with ISO188" in Method-A and Method-B (see 4.1 and 5.1 of this Edition);

--- Change the air oven in Method-A, Method-B and Method-D to a high temperature test chamber; and change the air oven in Method-C is to a damp heat test chamber (see 4.2.1, 5.2.1, 6.2.1 and 7.2.3 of this Edition; 3.2.1, 4.2.1, 5.2.1 and 6.2.3 of the 2009 Edition);

--- Increase the accuracy provisions of the thermometer (see 4.2.2, 5.2.2 and 6.2.2 of this Edition);

--- Add "ruler" and "dryer" instrument devices (see 4.2.4 and 4.2.5 of this Edition);

--- Change the cooling method of the test in Method-A to cooling in a desiccator (see 4.5 of this Edition; 3.5 of the 2009 Edition);

--- Change the content of the NOTE to the main text (see 4.5, 5.3 and 6.3 of this Edition; 3.5, 4.3 and 5.3 of the 2009 Edition);

--- Change the characters in the formula, using "Q_{AT}, Q_{AC}" to replace "ρ_{AT}, ρ_{AC}" (see 4.6 of this Edition, 3.6 of the 2009 Edition).

This Document equivalently adopts ISO 1419:2018 Rubber- or Plastics-Coated Fabrics – Accelerated-Aging Tests.

The following minimal editorial modifications have been made to this Document:

--- Add a NOTE to explain the purpose of the prepared specimen (see 4.3 of this Document);

--- Add a NOTE to explain the method of obtaining the mass per unit area Q_{AT} of the tested material in the formula (see 4.6 of this Document).

Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents.

Rubber- or Plastics-Coated Fabrics – Accelerated-Aging Tests

WARNING: Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This Document describes four methods of assessing the resistance of coated fabrics to deterioration by accelerated ageing.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

ISO 188 Rubber, vulcanized or thermoplastic – Accelerated ageing and heat resistance tests

NOTE: GB/T 3512-2014 Rubber, vulcanized or thermoplastic - Accelerated ageing and heat resistance tests (ISO 188:2011, IDT)

ISO 2231 Rubber-or plastics-coated fabrics – Standard atmospheres for conditioning and testing

NOTE: GB/T 24133-2009 Rubber-or plastics-coated fabrics - Standard atmospheres for conditioning and testing (ISO 2231:1989, IDT)

ISO 2286-1 Rubber-or plastics-coated fabrics – Determination of roll characteristics – Part 1: Methods for determination of length, width and net mass

NOTE: HG/T 3050.1-2020 Rubber-or plastics-coated fabrics – Determination of roll characteristics – Par1: Methods for determination of length, width and net mass (ISO 2286-1:2016, IDT)

ISO 2286-2 Rubber-or plastics-coated fabrics – Determination of roll characteristics – Part 2: Methods for determination of total mass per unit area, mass per unit area of coating and mass per unit of substrate

temperature with an accuracy of ±1 °C.

4.2.3 Balance, capable of weighing to an accuracy of 1 mg.

4.2.4 Ruler or other length-measuring device, of accuracy ±0.5 mm.

4.2.5 Desiccator for cooling the specimens after removal from the test chamber.

4.3 Preparation of test pieces

Cut out six test pieces, each measuring 100 cm^2 ± 1 cm^2, selected so that, as far as possible, they are evenly spaced across the Sample, but not within 50 mm of a selvedge.

NOTE: Among the 6 specimens, 3 specimens measure the mass m_1 of the specimen before aging and the mass per unit area of the coating layer, which are used to obtain the values of Q_{AT} and Q_{AC}. The other 3 specimens are used for ageing test, measure the specimen mass m_2 after the aging. Substitute the m_1, m_2 of the 3 specimens and the obtained Q_{AT} and Q_{AC} values into the formula to calculate the test results.

4.4 Conditioning and determination of mass

Condition the test pieces in atmosphere A, B or C as defined in ISO 2231. Determine and record the mass m_1 of each test piece to an accuracy of 1 mg in accordance with ISO 2286-1. Determine the mass per unit area Q_{AC} of the coating of three test pieces in accordance with ISO 2286-2.

4.5 Procedure

Select three of the conditioned test pieces as per 4.4, making a note of the conditioned mass of each (m_1). Pre-heat the test chamber to the test temperature of 100 °C ± 1 °C. Place the test pieces in the test chamber so that they are free from strain and exposed to the free passage of air on both sides. Remove the test pieces from the test chamber after 16 h and immediately put it into the dryer for cooling.

Re-condition the test pieces in accordance with 4.4 and determine and record the mass m_2 of each to an accuracy of 1 mg in accordance with ISO 2286-2.

If test pieces conditioned as specified in 4.4 after preparation approach equilibrium from the wet side of the hysteresis curve, this may result in an apparent inaccuracy due to the hysteresis loss caused by reconditioning from the dry side of the hysteresis curve after ageing. This effect will be more marked with highly hygroscopic substrates, and in such cases, it is advisable to pre-condition the test pieces in a dry atmosphere, i.e., one having a relative humidity less than 10 %, prior to conditioning as specified in 4.4.

4.6 Expression of results

Calculate the loss in mass of each test piece, expressed as a percentage of the coating mass, using the Formula (1):

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