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GB/T 15254-2014

Partially replacing GB/T 15254-1994

Rubber, vulcanized - Determination of adhesion to metal - 180° peel test method

硫化橡胶 与金属粘接 180°剥离试验

(ISO 8510-2:2006, Adhesives - Peel test for a flexible-bonded-to-rigid test specimen assembly - Part 2: 180° peel, NEQ)

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Issued by: General Administration of Quality Supervision, Inspection and Quarantine of PRC;

Standardization Administration of PRC.

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 15254-1994 " Rubber, vulcanized - Determination of adhesion to metal - 180° peel test method ". As compared with GB/T 15254-1994, the main technical changes are as follows:

- ADD the warning;
- ADD a schematic diagram of the 180° peel test of bonding between vulcanized rubber and metal (see Figure 1);
- ADD that "the recommended vulcanized rubber thickness is (2.0 ± 0.2) mm" (see 5.2);
- ADD the requirement for the length of the anti-adhesion tape of "about 10 mm" (see 6.5);
- ADD that “it may increase the thickness of the backing material or increase the thickness of the rubber test piece to carry out test; if the vulcanized rubber breaks, record the data” (see 9.5);
- ADD the "peel force curve" (see Figure 3);
- DELETE the average thickness of the adhesive layer in the measured specimen from the original version (see 6.8 of 1994 version).

This standard is compiled using the redrafting method and making reference to ISO 8510-2:2006 "Adhesives - Peel test for a flexible-bonded-to-rigid test specimen assembly - Part 2: 180° peel". The consistency with ISO 8510-2:2006 is nonequivalent.

This standard was proposed by the China Petroleum and Chemical Industry Federation.

This standard shall be under the jurisdiction of the General Test Method Subcommittee for Rubber and Rubber Products Standardization Technical Committee (SAC/TC 35/SC 2).

This standard is mainly drafted by: National Rubber and Latex Products Quality Supervision and Inspection Center, Gubo Chengshan (Shandong) Tire Co., Ltd., Beijing Rubber Industry Research and Design Institute.

The main drafters of this standard: Zheng Xiangqian, Li Baowei, Shen Xinyuan, Ju Xunning, Xie Junfang, Li Jing.

Rubber, vulcanized - Determination of adhesion to metal - 180° peel test method

Warning: Personnel using this national standard shall have hands-on experience in formal laboratory work. This standard does not address all possible safety issues, so users are responsible for adopting appropriate safety and health measures and ensuring compliance with national laws and regulations.

1 Scope

This standard specifies the 180° peel test method for vulcanized rubber as bonded to metal.

This standard is applicable to the determination of the 180° peel strength of vulcanized rubber as bonded to metal. The 180° peel strength of other flexible materials as bonded to rigid materials may also refer to this standard.

This standard does not apply to low-flexibility materials which will produce cracks or delamination after bending 180°. Such materials may be subjected to a 90° peel test, the test method may refer to GB/T 7760.

2 Normative references

The following documents are essential to the application of 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) are applicable to this standard.

GB/T 2941-2006 Rubber - General procedures for preparing and conditioning test pieces for physical test methods (ISO 23529:2004, IDT)

3 Principle

The specimen is made of vulcanized rubber bonded to metal. The open end of the bonded specimen is gradually peeled off in parallel along the longitudinal direction of the bonded material at a stable speed. The applied force passes through the peeled portion of the rubber-bonded material and is parallel to the metal plate. The average peel force that can be withstood across the unit width of the specimen is 180° peel strength.

6.4 If bonding with an adhesive, the adhesive shall be applied to the entire bonding surface of the rubber and the metal plate. Do not miss the coating. The length of the coating is 150 mm.

6.5 When preparing the specimen, put an anti-adhesive tape of about 10 mm long and about 30 mm wide between the rubber and the metal plate at the peeling end of the specimen, to facilitate peeling off the specimen before the test.

6.6 The specimen shall be flat and the misalignment of the bonding surface shall not exceed 0.2 mm.

6.7 If the specimen is to be pressurized, a uniform pressure shall be applied to the entire bonding surface. If there is no other requirement, the pressure is 700 kPa. When pressing, the surface of the specimen is covered with a rubber pad with a thickness of about 10 mm and a hardness of about 45 Shore A, which is favorable for uniform pressure distribution on the bonding surface.

7 Number of specimens

The number of specimens shall not be less than 5.

8 Specimen conditioning and test environment

The specimen conditioning, test temperature, time interval shall comply with the provisions of GB/T 2941-2006.

9 Test procedure

9.1 Measure the width of the bonding surface of the specimen. Measure the part for not less than 3 times. Take the average value, accurate to 0.1 mm.

9.2 Bend the vulcanized rubber at the peel end for 180°. Clamp it in an automatically adjustable holder. Sandwich the metal plate in the other holder and expose the peeled side to the operator. The specimen shall be carefully held and accurately positioned, so that the peel force is evenly distributed over the bond width when the specimen is stressed.

9.3 Turn on the test machine and let the holder to peel off the specimen at a speed of (100 ± 10) mm/min. Other speeds may be used if otherwise specified.

9.4 Use an automatic recording device to continuously record the peeling force at the time of peeling off. The peeling length shall be at least 125 mm.

9.5 If part of the tearing occurs during the test, the test may be continued after

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