

Translated English of Chinese Standard: GB/T41657-2022

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 83.180

CCS G 38

GB/T 41657-2022

Determination of puncture resistance of adhesive tape

胶粘带抗刺穿性能的测定

Issued on: July 11, 2022

Implemented on: February 1, 2023

**Issued by: State Administration for Market Regulation;
Standardization Administration of PRC.**

Table of Contents

Foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Principles.....	5
5 Instruments and equipment	5
6 Samples and specimens.....	7
7 Test steps	7
8 Test results.....	8
9 Test report	8

Determination of puncture resistance of adhesive tape

1 Scope

This document describes a method for determining the puncture resistance of adhesive tapes.

This document applies to the determination and evaluation of the puncture resistance of adhesive tapes.

2 Normative references

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

GB/T 1299-2014 Alloy tool steels

GB/T 22396 Terminology relating to pressure sensitive adhesive products

3 Terms and definitions

The terms and definitions defined in GB/T 22396 and the followings apply to this document.

3.1 puncture resistance

The ability of an adhesive tape to resist being pierced by sharp objects.

3.2 puncture force

The maximum force required to pierce the adhesive tape with a sharp object.

3.3 piercing instrument

A sharp tool with a specific shape for testing the puncture force of adhesive tapes.

3.4 puncture device

A device with a piercing instrument installed.

6 Samples and specimens

6.1 Adjustment of the state

Keep the whole roll of adhesive tape sample, the specimen holding device and the puncture device under the conditions of temperature (23 ± 1) °C and relative humidity (50 ± 5) % for more than 24 h.

If the test condition cannot be maintained, try to be close to the condition and note it in the report.

6.2 Sample selection

Before preparing the sample, tear off the outermost 3 layers of adhesive tape from the sample roll.

Unwind the sample from the sample roll to be tested at a rate of 500 mm/s~750 mm/s. When the unwinding force required by the adhesive tape is large and the sample cannot be unwound at the specified speed, it shall be unwound at a speed close to 500 mm/s.

The tested area of the sample shall not be folded or wrinkled, and the edge position of the adhesive tape shall be avoided.

6.3 Specimen size and quantity

The sample shall be a disc with a diameter of (28 ± 2) mm, and samples of other sizes may also be used under special circumstances. The number of samples shall not be less than 3 pieces. If the non-uniformity of the test results is large, the number of samples can be increased.

7 Test steps

7.1 Test standard conditions

The standard test environment temperature is (23 ± 1) °C, and the relative humidity is (50 ± 5) %.

7.2 Installation of the devices

Install the specimen holding device on the lower clasper of the constant-rate-of-extension tensile testing machine, and install the puncture device on the upper clasper of the constant-rate-of-extension tensile testing machine, so that the center of the piercing instrument aligns downward with the center of the round hole of the specimen holding device.

7.3 Clamping of the specimen

Under the condition of no tension and wrinkles, place the sample flat on the sample placing platform of the specimen holding device with the adhesive side facing down, cover the cover plate, and fasten the fastening screws to ensure that the sample will not slip horizontally during the test. If the sample is a double-sided adhesive tape, the adhesive side that is in contact with the puncture device and the adhesive side that is not in contact with the puncture device shall be marked.

7.4 Determination of the puncture force

Turn on the constant-rate-of-extension tensile testing machine, and set the puncture rate to 50 mm/min. If the puncture rate is set to other values, it shall be indicated in the test report. Before each test, reset the force value to zero and then turn on the puncture device to start the test. The maximum force generated during the test is the puncture force.

After the test, remove the cover plate of the specimen holding device and observe whether the sample is punctured and whether a horizontal slip occurs. If the sample slips in the horizontal direction, the data shall be judged as invalid.

If the sample slips in the horizontal direction during the process of determination, an annular disc can be added to the sample placing platform of the specimen holding device, to improve the horizontal friction force of the specimen holding device during the sample is being punctured and avoid the horizontal slip of the sample.

The annular disc shall be made of a double-sided adhesive tape or a gasket, with an outer diameter of (28 ± 2) mm and an inner diameter of (10.0 ± 0.5) mm.

8 Test results

The number of samples in each group shall be not less than 3; the test result is expressed by the arithmetic mean of the puncture force and accurate to 0.1 N; the minimum and maximum values shall be recorded at the same time. If the sample is not punctured, record the test result and the measuring range of the testing machine.

9 Test report

The test report shall contain the following information:

- a) The number of this document;
- b) Sample information;

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----