



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

GB/T 3903.29-2022

**Footwear - Test methods for outsoles - Determination of split
tear strength and delamination resistance**

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Foreword

This document is drafted in accordance with the provisions of GB/T 1.1-2020

"Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document replaces GB/T 3903.29-2008 "Footwear - Test methods for outsoles - Split tear strength and delamination resistance". Compared with GB/T 3903.29-2008, except for structural adjustments and editorial changes, the main technical changes are as follows:

- a) The terms and definitions of "split tear strength" is changed (see 3.2; see 3.2 of the 2008 edition);
- b) The requirements for the moving speed of the clamp and the length of the split cut are changed (see Chapter 6; see Chapter 6 of the 2008 edition);
- c) The rounding-off requirements for the values of the delamination resistance test results are added (see 7.1);
- d) The calculation formula for the split tear strength test results is added (see 7.2);
- e) The labeling requirements for "standard environmental conditions during the test" in the test report are added (see Chapter 8).

This document is modified in relation to ISO 20875:2018 "Footwear - Test methods for outsoles - Determination of split tear strength and delamination resistance".

The technical differences between this document and ISO 20875:2018 and their reasons are as follows:

- The scope of application of the standard is added (see Chapter 1) to meet the requirements for compiling standards in China;
- The definition of split tear strength is changed (see 3.2) to clarify that it is a strength index and consistent with the calculation formula;
- The normatively referenced GB/T 16825.1 replaces ISO 7500-1 (see 4.1), GB/T

22049 replaces ISO 18454 (see Chapter 5), and GB/T 22050 replaces ISO 17709

(see Chapter 5); these are to adapt to the Chinese technical conditions and help to the improvement of operability;

- Changed the accuracy of the tensile-testing machine is changed to level 2 (see 4.1), so as to be consistent with the level requirements for the tensile-testing machine in the cited document;

Footwear - Test methods for outsoles - Determination of split tear strength and delamination resistance

1 Scope

This document describes a method for the determination of the split tear strength and delamination resistance of outsoles.

This document applies to all kinds of outsoles for footwear.

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 16825.1 Verification of static uniaxial testing machines - Part 1:

Tension/compression testing machines - Verification and calibration of the force-measuring system (GB/T 16825.1-2008, ISO 7500-1:2004, IDT)

GB/T 22049 Footwear - Standard atmospheres for conditioning and testing of footwear and components for footwear (GB/T 22049-2019, ISO 18454:2018, IDT)

GB/T 22050 Footwear - Sampling location, preparation and duration of conditioning of samples and test pieces (GB/T 22050-2008, ISO 17709:2004, IDT)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 delamination resistance

If the outsole consists of multiple adhesive layers, the resistance is equal to the force required to separate the adhesive layer or bonded interface divided by the width of the sample.

1 --- Average value (the average value of all force values after the initial peak

value of the force reaches).

Figure 2 -- Graphical example of force/displacement

7.1 Calculate the delamination resistance D_s according to formula (1).

where:

D_s --- Delamination resistance, in Newton per millimeter (N/mm);

F --- Average force value, the unit is Newton (N);

d --- The width of the sample, in millimeters (mm).

The test result shall be the average value of 3 values, rounded to one decimal place.

7.2 Calculate the split tear strength ST_s according to formula (2).

where:

ST_s --- Split tear strength, in Newton per millimeter (N/mm);

F --- Average force value, the unit is Newton (N);

d --- The width of the sample, in millimeters (mm).

The test result shall be the median of 3 values, rounded to one decimal place.

8 Test report

The test report shall include the following contents:

- a) Test results, expressed in accordance with Chapter 7;
- b) Detailed description of the test sample, including style code, color, material, etc.;

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