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

GB/T 46832-2025

**Plastics - Determination of abrasive wear - Reciprocating linear
sliding motion method**

塑料 磨料磨损性能的测定 往复线性滑动法

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is modified to adopt ISO 20329:2020 "Plastics - Determination of abrasive wear by reciprocating linear sliding method".

Compared with ISO 20329:2020, this document has undergone the following structural adjustments.

- 7.6.1 corresponds to 7.6.2 in ISO 20329:2020;
- 7.6.2 corresponds to 7.6.3 in ISO 20329:2020;
- 7.6.3 corresponds to 7.6.4 in ISO 20329:2020;
- 7.6.4 corresponds to 7.6.5 in ISO 20329:2020;
- 7.6.5 corresponds to 7.6.1 and 7.6.5 in ISO 20329:2020;
- In Chapter 10, i) corresponds to i), j), and k) in ISO 20329:2020.
- Chapter 10, j) corresponds to ISO 20329:2020 l);
- In Chapter 10, k) corresponds to ISO 20329:2020m);
- Chapter 10, l) corresponds to ISO 20329:2020n);
- Appendix A corresponds to Appendix B in ISO 20329:2020;
- Appendix B corresponds to Appendix C in ISO 20329:2020;
- Appendix C corresponds to Appendix A in ISO 20329:2020.

The technical differences between this document and ISO 20329:2020, and the reasons therefor, are as follows.

---ISO 291 (see 6.2) has been replaced with the normatively referenced GB/T 2918 to adapt to my country's technical conditions;

---A calculation formula for wear quality has been added to replace the verbal description (see 8.1) to facilitate the implementation of the standard;

---ISO 80000-1:2009 (see 8.1) has been replaced with the normatively referenced GB/T 8170 to adapt to my country's technical conditions;

---Rounding requirements for wear amount and wear rate test results have been added (see 8.2 and 8.3) to improve operability and reliability.

Comparison of sexes.

The following editorial changes have been made to this document.

---Note 2 regarding the description of the balance scale has been deleted (see 3.3 and 3.4);

---Change "Method Principles" to "Method Overview" (see Chapter 4);

---The phrase "Weigh the sample before and after any number of reciprocating motions. The wear mass is measured by the difference in the weighed sample mass" has been removed.

"Calculate." (See Chapter 4), which repeats the content below, so this will be omitted to avoid redundancy;

---ISO 6344-1 has been replaced by GB/T 9258.1 (see 5.2 and 7.1) for informational reference;

---ISO 20753 has been replaced with GB/T 37426 (see 6.1), which is cited as informative.

---The linear relationship between the number of reciprocating motions and the wear quality has been added, see note in Appendix B (see 8.1).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

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

This document is under the jurisdiction of the National Technical Committee on Plastics Standardization (SAC/TC15).

Introduction

The reciprocating linear sliding method is an abrasive wear testing method based on the frictional force generated at the contact surface between the sample and the abrasive. It involves water...

In reciprocating motion, a load is applied to the abrasive in the direction perpendicular to

the sample, repeatedly applying frictional force to the wear surface. This document's resistance...

Wear resistance is characterized by the wear mass or wear rate per unit number of reciprocating cycles. Wear rate is one of the effective parameters for evaluating wear resistance in the field of tribology.

When conducting abrasive wear tests involving abrasive contact, it is important to avoid changes in abrasive grinding force due to jamming. This test achieves this by...

The reciprocating linear motion of the grinding wheel and the downward placement of the sample effectively reduce the changes in abrasive grinding force caused by clogging, thereby improving the grinding efficiency per unit volume.

The wear quality is consistent across multiple cycles, and the obtained wear rate is independent of the sliding distance.

Due to different wear mechanisms, the test results obtained in this document may differ from those obtained using other test methods.

Determination of wear performance of plastic abrasives Reciprocating linear sliding method

1 Scope

This document describes a test method for determining the wear resistance of plastics using reciprocating abrasives.

This document applies to the determination of abrasive wear properties of plastic materials.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 2918 Standard environment for conditioning and testing of plastic specimens (GB/T 2918-2018, ISO 291:2008, MOD) GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

3 Terms and Definitions

The following terms and definitions apply to this document.

abrasive wear

The grinding wheel causes material loss by cutting or scraping into the soft surface, creating a series of grooves.

[Source. GB/T 2035-2024, 3.2] 3.2 load the force applied to the specimen.

Note: Units are Newtons (N).

wear resistance

Wear mass of a single reciprocating motion.

Note: The unit is (mg/time), see 8.2, formula (2).

specific wear rate

Wear mass per unit sliding distance and per unit load.

Note: The unit is [mg/(N·m)], see 8.3, formula (4).