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GB/T 1724-2019

Replacing GB/T 1724-1979, GB/T 6753.1-2007

Paints, Varnishes and Printing Inks – Determination of Fineness of Grind

(ISO 1524:2013, MOD)

色漆、清漆和印刷油墨 研磨细度的测定

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaced GB/T 1724-1979 *Methods of Test for Fineness of Grind of Paints*, and GB/T 6753.1-2007 *Paints, Varnishes and Printing Inks – Determination of Fineness of Grind*. This Standard is mainly based on GB/T 1724-1979, and integrates GB/T 6753.1-2007. Compared with GB/T 1724-1979, this Standard has the major technical changes besides the editorial modifications as follows:

--- Add the Scope (see Clause 1 of this Edition);

--- Add Method-A (see Clause 4 of this Edition);

--- Modify the requirements for fineness plate and scraper (see 5.1 of this Edition; Clause 1 of 1979 Edition).

This Standard uses the redrafting method to modify and adopt ISO 1524:2013 *Paints, Varnishes and Printing Inks – Determination of Fineness of Grind*.

Compared with ISO 1524:2013, this Standard has the structural adjustment; the Appendix A lists Comparison List of the Clause No. between this Standard and ISO 1524:2013.

Compared with ISO 1524:2013, this Standard has the technical differences; the clauses involved these differences have been identified by a vertical single line (|) at the outer margin; and a list of corresponding technical differences and their causes is given in Appendix B.

This Standard also made the following editorial changes:

--- Delete the Foreword of the international standard;

--- Add Appendix A (Informative) Comparison of Clause No. between this Standard and ISO 1524:2013;

--- Add Appendix B (Informative) Technical Differences and their Causes between this Standard and ISO 1524:2013.

This Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Paints & Pigments of Standardization Administration of China (SAC/TC 5).

Drafting organizations of this Standard: CNOOC Changzhou Paint and Coatings Industry Research Institute Co., Ltd.; Anhui Linghu Paint Co., Ltd.; Xuancheng Yabang

Paints, Varnishes and Printing Inks – Determination of Fineness of Grind

1 Scope

This Standard specifies the method of using the appropriate fineness plate [scale is (μm)] to determine the grind fineness of paints, varnishes, printing inks.

This Standard is applicable to the determination of the fineness of all types of liquid paints and varnishes and the relevant products; while it is not applicable to the determination of the fineness of products containing flake pigments (such as glass flaks, micaceous iron oxide, and flaks zinc powder).

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 document.

GB/T 3186 Paints Varnishes and Raw Materials for Paints and Varnishes – Sampling (GB/T 3186-2006, ISO 15528-2000, IDT)

GB/T 20777 Paints and Varnishes - Examination and Preparation of Samples for Testing (GB/T 20777-2006, ISO 1513:1992, IDT)

JB/T 9385-2017 Specifications for the Scraper Fineness Gauges

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Fineness of grind

The readings obtained on a standard fineness gauge under the specified test conditions. Such readings indicate the depth of the fineness gauge groove at which the discrete solid particles in the product can be easily distinguished.

5 Method-B

5.1 Instrument

The fineness gauge and scraper shall meet the requirements of JB/T 9385-2017.

The accuracy of the fineness of grind depends on the used fineness gauge (see 5.3). When reporting the results or specifying the requirements, the specification of the fineness gauge shall be specified (150μm, 100μm or 50μm).

5.2 Sampling

See 4.2.

5.3 Test procedures

5.3.1 Perform the preliminary tests to determine the optimum specification of the fineness gauge and the approximate grind fineness of the sample (see Table 2 and Paragraph 2 of 5.3.5). Such results of approximate measurement are not included in the test results. The sample shall be tested in parallel for three times.

Table 2 – Typical Fineness Gauge Scales and Recommended Test Range Unit: μm

Specification of fineness gauge	Scale interval	Recommended test range
150	5	≥71
100	5	≥31～≤70
50	2.5	≤30

5.3.2 Place the washed and dried fineness gauge (see 5.1) on a flat, horizontal, non-sliding surface.

5.3.3 Pour a sufficient amount of the sample into the deep end of the groove and allow the sample to overflow slightly. Be careful not to entrain the sample with air when pouring the sample.

5.3.4 Hold the scraper with the thumbs and forefingers of both hands (see 5.1); place the blade of the scraper on the deepest end of the groove of the fineness gauge; touch the surface of the fineness gauge; make the long side of the scraper parallel to the wide side of the fineness gauge; moreover, the scraper shall be pressed perpendicularly to the surface of the fineness plate; so that the scraper and the long side of the groove form an right angle. The scraper is scraped across the entire surface of the fineness gauge at a uniform speed within 3s to a position where the depth of the groove is zero. In the case of printing inks or similar viscous liquids, in order to avoid the low results, the time required for the scraper to scrape the entire groove length shall be no less than 5s. Apply sufficient downward pressure on the scraper to ensure

the groove is filled with the sample and the excessive sample shall be scrapped off.

5.3.5 After the sample is scrapped, immediately (no greater than 5s) observe the fineness gauge from the side as soon as possible. When observing, the sight line and the long side of the groove shall form a right angle; and the angle with the surface of the fineness gauge shall be 15°~30°; meanwhile, observation is required to be conducted under light that is easy to see the condition of the sample in the groove.

If the flowability of the sample causes a flat pattern can't be obtained after scraping and coating, a minimum amount of suitable diluent or paint base solution can be added and manually stirred; then followed by repeated test. Any dilution shall be indicated in the report; sometimes, the diluted sampled may occur flocculation and affect the fineness of the grind.

5.3.6 Observe the sample position where the dense particles appear firstly; record the readings (accurate to the minimum scale) on the groove position where the particles appear uniformly. If there are individual particles exposes to other scale lines, then the number of the particles in the range between readings and the adjacent scale line shall not exceed 3 (see Figure 4).

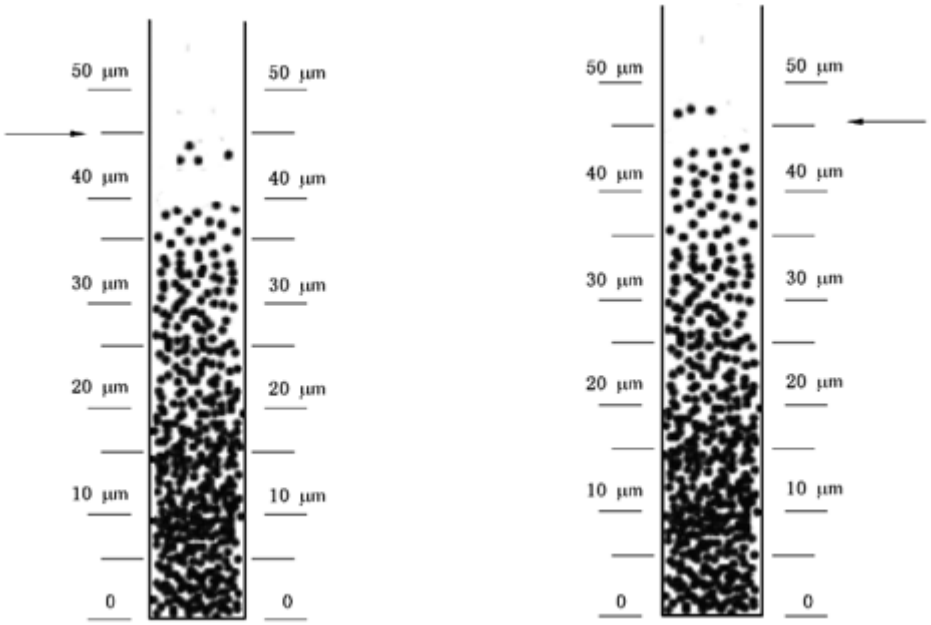

Figure 4 – Example of Fineness with Readings of 45μm

5.3.7 Immediately use suitable solvent to clean the fineness gauge and scraper after each reading.

5.4 Results expression

The test results take the arithmetic mean of two readings that are close to each other, accurate to the minimum scale of the fineness gauge. The difference between two

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