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

GB/T 18251-2019

**Method for the assessment of the degree of pigment or carbon
black dispersion in polyolefin pipes, fittings and compounds**

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Foreword

1 Scope

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4 test process

4.1 Sample preparation

Foreword

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

This standard replaces GB/T 18251-2000 "Determination of the dispersion of pigments or carbon black in polyolefin pipes, fittings and compounds", and

Compared with GB/T 18251-2000, the main technical changes are as follows.

--- Modify "Microscope. Minimum Magnification x 70" to "with appropriate magnification" (see 3.1.1);

--- Increased the dispersion size rating using a 100x microscope (see 4.2.1);

--- Increased the dispersion of apparent grades using a microscope with a magnification of at least 70 x (see 4.2.2);

--- Modified the sample quality requirements (see 4.1.1.1);

- Increased considerations for the test preparation of tableting methods (see 4.1.1.1);
- Modified the sample width requirement (see 4.1.1.1);
- Modified sample thickness requirements (see 4.1.1.2 and 4.1.2);
- Deleted the microscope model, magnification, increased the thickness of the sample, the average grade of each set of samples and the grade of each sample, each

The most representative apparent grade in the set of samples and the apparent grade of each sample, any deviation from the test method details, and

Any factor that can affect the outcome, such as bubbles, impurities, etc. produced in the sample (see Chapter 6);

- Revised Table A.1 of Appendix A and added for explanation (see Appendix A).

This standard uses the redrafting method to modify the use of ISO 18553.2002 "polyolefin pipes, pipes and blends of pigments or carbon black dispersion

Determination of degree.

The main technical differences between this standard and ISO 18553.2002 and their reasons are as follows.

- Removed 4.1 "This standard specifies two methods for preparation of samples. tableting method and sectioning method.";

- Refined the description of the apparent grade determination of the sample (see 5.2), added the reference to the informative Appendix D, which is convenient for the standard.

use;

- For the details of any deviation from the test method in the test report, and any factors that may affect the results, an example is given (see

Chapter 6).

This standard also made the following editorial changes.

- Incorporate the amendments to ISO 18553.2002/Amd1.2007 (see 4.2.1), reducing the workload of pellet counting;

- Appendix A Table A.1 added "Note 4. particle size is taken as an integer, the first non-zero digit carry after the decimal point".

1 Scope

This standard specifies the method for determining the size and dispersion of pigments or carbon black particles and granules in polyolefin pipes, fittings and compounds.

This standard applies to polyolefin pipes, pipe fittings and compounding. When determining carbon black, this standard is applicable to the aggregation of carbon black mass fraction less than 3%.

Olefin pipes, fittings and compounds.

2 Principle

Take a small amount of sample from the tube, tube or pellets and compress it to prepare the sample between the microscope slides. You can also use a slicer to cut the sample.

Tablets were prepared for the samples.

The sample was observed under a microscope, and the size of the particles and the pellets was measured, and the grade was determined in comparison with the sample classification table (see Appendix A, Table A.1).

The dispersion size rating of the particles or pellets is determined by the average of the six sample grades.

If a dispersive apparent grade is required, it is determined by comparison with a photomicrograph (see Figure B.1 of Appendix B).

3.1 General

3.1.1 Microscope. with appropriate magnification (see 4.2), with a calibrated orthogonal moving scale, capable of measuring the size of particles and granules

Inch, its illumination should avoid optical effects.

3.2 Tablet device or instrument

3.2.1 Oven or heating plate or other heating equipment. The temperature is controlled between 150 °C and 210 °C.

3.3 Slicing device or instrument

Slicer. A sheet of the specified thickness can be cut (see 4.1.2).

4.1.1 Tableting method

4.1.1.1 Cut six specimens along different parts of the product with a scalpel. When measuring pigment dispersion, the mass of each sample is (0.6 +/- 0.2) mg.

When the carbon black dispersion was measured, the mass of each sample was (0.2 +/- 0.10) mg. Place six specimens on one or several clean microscope slides

Top, each sample is discharged approximately equidistantly from the edge of its adjacent

specimen or slide, and covered with another (or several) clean slides.

GB/T 18251-2019

(Determination of the dispersion of pigments or carbon black in polyolefin pipes, fittings and compounds)

ICS 83.140.30

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National Standards of People's Republic of China

Replace GB/T 18251-2000

Polyolefin pipes, fittings and compounds

Determination of the dispersion of pigments or carbon black

Method for the assessment of the degree of pigment or carbon black dispersion

In polyolefin pipes, fittings and compounds

(ISO 18553:2002, MOD)

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State market supervision and administration

China National Standardization Administration issued

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- Increased considerations for the test preparation of tableting methods (see 4.1.1.1);