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

GB/T 3780.15-2016

Replacing GB/T 3780.15-2006

**Carbon black -- Part 15: Determination of light transmittance of
toluene extract**

炭黑 第15部分：甲苯抽出物透光率的测定
(English Translation)

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Foreword

GB/T 3780 "Carbon black" is divided into the following parts.

- Part 1. Test method for iodine absorption;
- Part 2. Determination of oil absorption;
- Part 4. Determination of oil absorption of compressed specimens;
- Part 5. Determination of specific surface area - CTAB method;
- Part 6. Determination of color strength;
- Part 7. Determination of pH;
- Part 8. Determination of heating reduction;
- Part 10. Determination of ash;
- Part 12. Inspection of impurities;
- Part 14. Determination of sulfur content;
- Part 15. Determination of light transmittance of toluene extract;
- Part 17. Indirect determination of particle size Reflectance method;
- Part 18. Identification methods in natural rubber (NR);
- Part 21. Determination of sieve residue Water rinsing method;
- Part 22. Calculating the process capability index with process control data;
- Part 23. Sampling and identification of disperse carbon blacks or other environmental particles.

This part is part 15 of GB/T 3780.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 3780.15-2006 "Carbon black Part 15. Determination of light transmittance of toluene extract", and GB/T 3780.15-2006, the main technical changes are as follows.

- removed "with the A method of testing, carbon black samples without breaking; with B method test, carbon black samples subject to crushing treatment", while increasing Plus "before the test, the sample should pass through the 850 μ m (20 mesh) sieve"; this version only provides a method, not divided into A and B method (See 6.2, version 6.2 of 6.2);
- increase the fume hood (see 5.13);
- increase the "carbon black drying is optional, such as thermal cracking carbon black, in the production process has been dry." (See 6.3 note);
- modify the test steps for the "spectrophotometer calibration" and "test the test" two parts (see 8.11.2.2, 2006 version of the first 8 chapter);
- modify the "carbon black sample volume and add toluene volume" for the form of form (see Table 1, 2006 version of 8.1.2);
- Added some precautions during operation (see note 8.2.4).

This part uses the re-drafting method to modify the transmittance of ISO 3858.:2008 "rubber compounding agent carbon black toluene extract set".

This section has a greater structural adjustment compared to ISO 3858.:2008, which is listed in Appendix A and ISO 3858.:2008 Chapter number comparison list.

The technical differences between this section and ISO 3858.:2008 are as follows.

- Added for pigmented carbon black to expand applicability (see Chapter 1, ISO 3858.:2008, Chapter 1);
- removed ISO/T R9272, increased GB 3778, GB/T 7044, GB/T 8170, also cited with the ISO corresponding China GB/T 3780.8, GB/T 6003.1 (see Chapter 2, Chapter 2 of ISO 3858.:2008);
- increase "before the test, the sample should pass through the 850 μ m (20 mesh) sieve" (see 6.2);
- modify the "dry about 4g carbon black sample" as "take the appropriate amount of carbon black samples for drying" to increase the operability (see 6.3, ISO 3858. 2008, 6.2);
- modify the "carbon black sample volume and add toluene volume" text description for the form form (see 8.2.1, ISO 3858.:2008 8.2.1, 8.2.2).

This section is proposed by the China Petroleum and Chemical Industry Association.

This part is headed by the National Committee for the Standardization of Rubber and Rubber Products Standardization Technical Committee (SAC/TC35/SC5).

This part of the drafting unit. China Rubber Group Carbon Black Industry Research and Design Institute, Sichuan Institute of Technology, Shandong Branch of the new materials Co., Ltd.

1 Scope

This part of GB/T 3780 specifies the principle of determining the transmittance of carbon black toluene extract by spectrophotometer, reagents, instruments, samples Products, test procedures, test data processing, precision and test reports.

This part applies to rubber carbon black and pigment carbon black.

This part does not apply to carbon black varieties with high toluene extract content.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB 3778 Rubber carbon black GB/T 3780.8 Carbon black - Part 8. Determination of heating reduction (GB/T 3780.8-2008, ISO 1126.:2006, MOD) GB/T 6003.1 Test sieve technical requirements and testing Part 1. Wire braid test sieve (GB/T 6003.1-2012, ISO 3310-1.:2000, MOD) GB/T 7044 Pigment Carbon Black Representation and Judgment of Numerical Correction Rule and Limit Value of GB/T 8170

3 Principle

A certain amount of dry carbon black is mixed with a volume of toluene, the mixture is filtered and the filtrate is transferred to a colorimetric bath, the transmittance of the filtrate was measured with pure toluene as a blank at a given wavelength.

The light transmittance size reflects the degree of discoloration caused by the toluene extract from the surface of the carbon black.

4 Reagent

Toluene, analytical grade.

5 Instruments

5.1

Analysis of the balance. scale value of 0.01g.

5.2

oven. gravity convection type, can be controlled at $(125 \pm 5) ^\circ\text{C}$, temperature control accuracy of $\pm 1 ^\circ\text{C}$.