

ICS 83.040.30

CCS G49



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

GB/T 10722-2014

Replacing GB/T 10722-2003

**Carbon black - Determination of total and external surface
area-Nitrogen adsorption test method**

炭黑 总表面积和外表面积的测定 氮吸附法

Issued on: December 31, 2014

Implemented on: July 1, 2015

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China;
Standardization Administration of China**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and Definitions

Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. This standard replaces GB/T 10722-2003 "total surface area of \u200b\u200bthe carbon black and the external surface area by nitrogen adsorption method" and GB/T 10722- Compared to 2003, the main technical changes are as follows:

- Increasing the GB/T 8170, HG/T 3065 (see Chapter 2);
- Remove the "meaning and purpose" (see 2003 edition of Chapter 5);
- Increased "(125 ± 10) °C" (see 65, 2003 version 7.5.);
- Added "silica sample preparation, should be according to the provisions of HG/T 3065 is heated to a constant weight," while increasing the note (see 8.1.1, Note);
- Modify the "Weigh about 0.4g sample in the sample tube" to "weigh the quality of the sample, the surface area of \u200b\u200bthe inner tube sample was 20m² ~ 50m² ", while adding a note (see 8.1.3 and Notes, 2003 version 8.4);
- Increased results for "standard reference carbon black and silica SRBB8 may take a longer time to obtain a stable degassing, recommendations Degassing time is extended to 1h "(see
- Remove the "carbon black for rubber, carbon black and acetylene black pigment predetermined degassing temperature (300 ± 10) °C, degassing silica predetermined temperature Is (160 ± 10) °C "(see 2003 version 8.6.3);
- Increased "should be purified after the test day, Dewar and dried" (see 92, 2003 version 9.2.);
- Added "interval between two consecutive measurements at least p0 10min" (see
- The "In the relative pressure (p/p0) is at least five to be measured within the range of 0.1 to 0.5 uniformly distributed data points" to "test carbon When black sample. the relative

pressure (p/p_0) of at least five to be measured within the range of

1 Scope

GB/T 10722-2014 is the Chinese national standard on carbon black - determination of total and external surface area-nitrogen adsorption test method, in the field of rubber and plastic industries. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 December 2014 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 July 2015. Classification: ICS 83.040.30, CCS G49. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the Brunauer, Emmett, multi-molecular layer Teler (BETNSA) adsorption theory multi-point method to determine the total surface Product, as well as the external surface area measured by statistical thickness surface area of \u200b\u200bthe adsorption method. This standard applies to carbon black for rubber, dye black, acetylene black and precipitated hydrated silicon dioxide (silica).

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 3778 carbon black for rubber

GB/T 3782 acetylene black

GB/T 7044 carbon black pigment

GB/T 8170 repair value expressed about the rules and limit values \u200b\u200band judgment

HG/T 3061 Rubber compounding ingredients precipitated hydrated silica

HG/T 3065 Rubber compounding ingredients Determination precipitated hydrated silica heating loss

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Nitrogen adsorption surface area nitrogensurfacearea; NSA SNSA According to BET theory, the total surface area of the carbon black by the nitrogen adsorption data calculated.

3.2 Statistics adsorption layer thickness of the surface area statisticalthicknesssurfacearea; STSA SSTSA Use deBoer theoretical models and carbon black, the nitrogen adsorption data to calculate the external surface area. Principle

4 At liquid nitrogen temperature, and calculates the total surface area of the carbon black or white carbon look adsorbed nitrogen molecules from a certain number of partial pressure of nitrogen gas area.