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Replacing GB/T 7702.18-1997

Test Method for Granular Activated Carbon from Coal - Determination of caramel adsorption

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Foreword

GB/T 7702 "Test Method for Granular Activated Carbon from Coal" is divided into:

- Part 1: Determination of Moisture;
- Part 2: Determination of Particle Size;
- Part 3: Determination of Hardness;
- Part 4: Determination of Packing Density;
- Part 5: Determination of Absorption of Water;
- Part 6: Determination of Methylene Blue Absorption;
- Part 7: Determination of Iodine Number;
- Part 8: Determination of Phenol Absorption;
- Part 9: Determination of Ignition Temperature;
- Part 10: Determination of Service Life against Benzene and Chloroethane Vapours;
- Part 13: Determination of CCL₄ Vapour Absorption;
- Part 14: Determination of Sulphur Capacity;
- Part 15: Determination of Ash Content;
- Part 16: Determination of pH Value;
- Part 17: Determination of Floatation Ratio;
- Part 18: Determination of Caramel Absorption;
- Part 19: Determination of Carbon Tetrachloride (CCl₄) Desorption;
- Part 20: Determination of Pore Volume and Specific Surface Area.

This Part is part 18 of GB/T 7702.

This Part replaces GB/T 7702.18-1997 *Standard test method for granular activated carbon from coal - Determination of caramel adsorption*.

Compared with GB/T 7702.18-1997, the main changes of this Part are as follows:

- a) Change the standard structural according to GB/T 1.1-2000 *Directives for standardization - Part 1: Rules for the structure and drafting of standards* and GB/T 20001.4-2001 *Rules for drafting standards - Part 4: Methods of chemical analysis*;
- b) Add Method A: Preparation and calibration of caramel stock solution;
- c) Added Chapter 3 “Terms and definitions”.

This Part was proposed by and shall be under the jurisdiction of China North Industries Group Corporation.

Drafting organization of this Part: Shanxi Xinhua Chemical Co., Ltd.

Main drafting staffs of this Part: Han Chongyun, Li Weibing, Zhao Jijun, Chi Guangxiu, Yuan Yidong, Zhang Xu, and Li Ruomei.

This Part replaces the following historical editions:

— GB/T 7702.18-1987, GB/T 7702.18-1997.

Test Method for Granular Activated Carbon from Coal - Determination of Caramel Adsorption

1 Scope

This Part specifies the content such as determination principle, determination steps and result calculation for the determination of caramel adsorption of granular activated carbon from coal.

This Part applies to the determination of caramel adsorption of granular activated carbon from coal. It is also applicable to determination of caramel adsorption of other activated carbon.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Part of GB/T 7702. For dated reference, the subsequent amendments (excluding correction) or revisions of these publications do not apply. However, the parties who enter into agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards. For undated references, the latest edition of the normative document referred to applies.

GB/T 639 Chemical Reagent - Sodium Carbonate Anhydrous (GB/T 639-2008, ISO 6353-2:1983, NEQ)

GB/T 658 Chemical Reagent - Ammonium Chloride (GB/T 658-2006, ISO 6353-2:1983, NEQ)

GB/T 687 Chemical Reagent - Glycerol (GB/T 687-1994, neq ISO 6353-3:19S7)

GB 1259 Working Chemical - Potassium Dichromate

GB/T 1914 Chemical Analytical Filter Paper

GB/T 6682 Water for Analytical Laboratory Use - Specification and Test Methods (GB/T 6682-2008, ISO 3696, 1987, MOD)

3 Terms and definitions

For the purpose of this Part of GB/T 7702, the following terms and definitions apply.

6.10 Electric stirrer (speed adjustable).

6.11 Analytical balance: sensitivity is 0.0001 g.

6.12 Electrothermal constant-temperature drying oven: 0°C~300°C.

6.13 Dryer: filled with anhydrous calcium oxide or allochroic silica gel.

6.14 Grinding machine.

6.15 Electric thermostat furnace.

6.16 Constant-temperature oil bath.

7 Specimen preparation

Take about 10 g of specimen by using quartering method. Grind it in grinding machine until more than 90% of the specimen can pass through the 0.071 mm test sieve. The sieve-remaining specimen is mixed with it uniformly. Place in electrothermal constant-temperature drying oven at 150°C±5°C to dry for 2 h. Place in the dryer to cool down for later use.

8 Determination steps

8.1 When using Method A caramel test solution to determine the caramel adsorption, weigh 0.400 g of specimen, accurate to 0.0001 g (when using Method B caramel test solution to determine caramel adsorption, weigh 0.350 g of specimen, accurate to 0.0001 g). Place in a 100 mL conical flask.

8.2 Measure 25 mL of caramel test solution with pipette. Put it in a conical flask containing specimen. Slowly shake the conical flask to wet the specimen completely.

8.3 Place in boiling water bath. Heat for 30 min. Shake it once every 5 min.

8.4 Take out. Immediately use filter paper to filter. Discard 5 mL of primary filtrate. All test solution shall be filtered. Cool down to room temperature.

8.5 Use water as the reference solution, measure the absorption with a spectrophotometer and a 10 mm cuvette at wavelength of 426 nm.

8.6 Take 25 mL of blank test solution. Conduct blank test according to the requirements of 8.4 ~ 8.5. Obtain the absorption of the blank test solution.

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