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

GB/T 1548-2016

Replacing GB/T 1548-2004

**Pulps -- Determination of limiting viscosity number in
cupriethylenediamine (CED) solution**

纸浆 铜乙二胺 (CED) 溶液中特性粘度值的测定

(English Translation)

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Foreword

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

This standard replaces GB/T 1548-2004 "Determination of pulp viscosity", compared with GB/T 1548-2004 main changes are as follows.

--- modified the standard name;

The diameter of the calibrated capillary viscometer is changed from (0.57 ± 0.02) mm to (0.58 ± 0.02) mm;

--- constant temperature water bath temperature control accuracy from ± 1 °C to ± 0.1 °C;

--- timer accuracy from 1s to 0.1s;

--- modified the sample preparation method;

--- increase the high intrinsic viscosity value of the sampling requirements;

--- increase the concentration of pulp in dilute solution calculation;

--- increase the degree of polymerization and calculation methods;

--- modified the results of the intrinsic viscosity value;

- Reagents and methods for preparing copper ethylenediamine (CED) solutions are adjusted.

This standard adopts the re-drafting method to modify the intrinsic viscosity value of ISO 5351.:2010 "pulp copper ethylenediamine (CED) solution Determination".

The technical differences between this standard and ISO 5351.:2010 are as follows.

--- on the normative reference documents, this standard has made a technical differences in the adjustment to meet China's technical conditions, the adjustment of the situation is reflected in Chapter 2, "normative reference documents", the specific adjustments are as follows.

Replace GB 638 with GB/T 462 with international standard;

Replace ISO 7213 with equivalent GB/T 740 with international standard.

- increased terminology and definition of degree of aggregation (see 3.6);

--- deleted 5.5, the standard is not involved;

--- Deleted 5.6, 7.4 and Chapter 11, because this standard does not provide a capillary tester with automatic timer;

--- delete the suspension section in 6.1;

- Chapter 8, Chapter 9 adds the secondary bar;

--- Corrected 10.3 Calculation example formula error number;

--- increase the concentration of pulp in dilute solution calculation;

--- increase the degree of polymerization calculation method;

The information is attached to appendix C.

1 Scope

This standard specifies the method for the determination of the intrinsic viscosity value of the pulp in the copper ethylenediamine (CED) solution and the calculation method of the degree of polymerization.

This standard is applicable to bleached chemical pulp soluble in copper ethylenediamine (CED) solution and is suitable for use in completely soluble in copper ethylenediamine (CED) Liquid of all kinds of pulp.

Note 1: The results can be used to evaluate the effect of cooking or bleaching on the degradation of cellulose, but when the sample contains a large amount of non-cellulosic material, Detailed description.

Note 2: In strict terms, this viscosity measurement method is only used for the sample of the polysaccharide component and is suitable for the determination of the intrinsic viscosity of the pulp having a lignin content of less than 0.5%. this method for the determination of unbleached pulp with a lignin content of between 0.5% and 4.0%, although most of the ingredients of the pulp can be completely dissolved in copper ethylenediamine (CED) Solution after the test, but the test results are not strictly in the sense of the intrinsic viscosity value.

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/T 462 Paper, board and pulp analysis Sample moisture determination (GB/T 462-2008, ISO 287. 1985, ISO 638.

1978, MOD)

GB/T 740 Pulp samples taken (GB/T 740-2003, ISO 7213.:1991, IDT)

3 Terms and definitions

The following terms and definitions apply to this document.

Shear rate

The velocity gradient of the fluid layer parallel to the flow direction of the capillary inner surface is calculated according to equation (1) $G = 4V / \pi r^3 t_f$ (1) where.

G - the shear rate of the solution in seconds (s⁻¹);

V - Viscometer The volume between two calibration scales in milliliters (mL);

r - capillary radius in centimeters (cm);

t_f - solution outflow time in seconds (s).

Viscosity ratio

etaratio

At the same temperature, the viscosity (eta) of the polymer solution of a certain concentration and the viscosity (eta₀) of the solvent, the viscosity ratio is not dimensionally,