

ICS 85.060
CCS Y 30



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

GB/T 8943.1-2008

Replacing GB/T 8943.1-1988

**Paper, board and pulp -- Determination of copper content
(English Translation)**

Issued on: January 4, 2008

Implemented on: September 1, 2008

Issued by: Standardization Administration of China

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Foreword

GB/T 8943 is divided into four parts.

- GB/T 8943.1 "paper, board and pulp - Determination of copper content";
- GB/T 8943.2 "paper, board and pulp - Determination of iron content";
- GB/T 8943.3 "paper, board and pulp - Determination of manganese content";
- GB/T 8943.4 "Paper, paperboard and pulp calcium and magnesium content determination." this section GB/T 8943 Part 1, corresponding to the international standards ISO 778:2001 "Paper, paperboard and pulp - Determination of copper content." this part is GB/T 8943.1-1988 "Pulp, paper and board Determination of copper content Law" amendment.

The partial modification of international standards ISO 778:2001 this part of International Standard ISO 778:2001 compared to the following changes.

- Adding a new test method (see Section 3 of this chapter).

This part of ISO 778:2001 technical differences are listed in Appendix A.

This part of ISO 778:2001 structure comparison are listed in Appendix B.

This Part replaces GB/T 8943.1-1988.

This portion of the GB/T 8943.1-1988 have compared the following changes.

- Increased warnings;
- Increasing the normative references;
- Modify some narrative statement.

This section of the Appendices A and B are informative appendices.

This part is proposed by the China National Light Industry Council.

This part of the National Standardization Technical Committee under the jurisdiction of the paper industry.

This part of the paper by the Zhejiang Provincial Quality Supervision, Inspection Station is responsible for drafting.

1 Scope

GB/T 8943 provisions of this part of the two methods, namely diethyl dithiocarbamate spectrophotometric method (Method A) and former flame Sub absorption spectrophotometry (Method B), determination of pulp, paper and paperboard in copper, the arbitration shall be by flame atomic absorption spectrophotometry (Method B).

This section applies to the determination of all kinds of pulp, paper and paperboard copper content.

2 Normative references

The following documents contain provisions which, through GB/T reference in this 8943 constitute provisions of this part. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 450 to take a sample of paper and cardboard (GB/T 450-2002, eqv ISO 186:1994)
GB/T 462 Paper and board Determination of moisture (GB/T 462-2003, ISO 287. 1985, MOD)
GB/T 740 pulp samples taken (GB/T 740-2003, ISO 7213:1991, IDT)
GB/T 741 Determination of pulp sample moisture (GB/T 741-2003, ISO 638. 1978, MOD)
GB/T 742 paper, paperboard and pulp residue (ash) determination (900 °C) (GB/T 742-2003, ISO 2144:1997, MOD)

3.1 Principle

The sample is ashed and the residue (ash) was dissolved in hydrochloric acid, ammonia solution, the copper ions with diethyl dithiocarbamate Sodium generate a yellow-brown colloidal complexes, color intensity is proportional to the concentration of copper ions. The use of starch as a protective colloid, to make such a yellow-brown Color colloidal complex to form a stable colloidal suspension. Spectrophotometrically at 435nm wavelength, which colored solution for photometric Determination.

3.2 Reagents

Analysis, use of analytical grade reagents and distilled water or equivalent purity. Distilled water copper content should be below 0.01mg/kg.

3.2.1 0.1g/L copper standard solution I. The 0.100g of pure electrolytic copper dissolved in about 5mL nitric acid (density of 1.4g/mL) and the solution was boiled to get rid of nitrous fumes. After cooling, the whole was transferred to 100mL volumetric flask, diluted with distilled water to content Flask scale, and mix well. The standard solution contains 1mL 0.1mg of copper.

3.2.2 0.01g/L standard copper solution II. Pipette 100mL standard copper solution I in 1000mL volumetric flask, diluted with distilled water to Flask scale, mix well. 1mL of this standard solution contains 0.01mg copper. The solution is unstable, the use of time should not exceed 24h.

3.2.3 Diethyl dithiocarbamate solution. about 1g/L. 0.1g of diethyl dithiocarbamate

$[(C_2H_5)_2NCSSNa \cdot 3H_2O]$ was dissolved in 100mL of distilled water (such as turbidity, should be filtered). With brown glass storage, dark place Place. This solution can be kept constant for about a week.