



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

GB/T 40272-2021

**Paper, board, pulps and cellulose nanomaterials -
Determination of acid-soluble magnesium, calcium,
manganese, iron, copper, sodium and potassium**

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Foreword

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

This standard uses the redrafting method to amend and adopt ISO 12830.2019 `Paper, paperboard, pulp and cellulose nanomaterials acid-soluble magnesium, calcium,

Determination of manganese, iron, copper, sodium and potassium.

Compared with ISO 12830.2019, the structural adjustments of this standard are as follows.

---Merge 8.2 and 8.3 into 8.2, modify 8.4 to 8.3.1, and modify 8.5 to 8.3.2;

---Merge 10.1 and 10.2 into Chapter 10;

--- Split Chapter 11 into 3 articles;

--- Change A.1 and A.4 to a sub-clause expression.

Compared with ISO 12830.2019, the main technical differences of this standard and the reasons are as follows.

---Modified the scope, increased the detection limit of the method, and made the standard technical content more perfect;

--- Regarding normative reference documents, this standard has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", with specific adjustments as follows.

- * Replace ISO 186 with GB/T 450, which is modified to adopt international standards;
- * Replace ISO 638 with GB/T 462, which is modified to adopt international standards;
- * Replace ISO 7213 with GB/T 740 which is equivalent to adopting international standards;
- * Replace ISO 3696 with GB/T 6682 modified to adopt international standards;
- * Replace ISO 1762 with GB/T 22877 which is modified to adopt international standards;

--- The notes to 3.1, 3.2 and 3.3 in terms and definitions have been deleted. This part of ISO 12830.2019 is mainly used to explain the "introduction"

The content in "Shao", this standard does not have this part;

---Modified the content in 5.1, in line with my country's test method standard compilation rules;

---Added the requirements for the purity of the metal used when preparing the standard element stock solution, as well as the storage time and environmental requirements of the stock solution,

Make the standard technical content more perfect and easy to operate.

1 Scope

This standard specifies the use of atomic absorption spectroscopy (AAS) or inductively coupled plasma emission spectrometry (ICP-OES) for the determination of paper, paper

A method of acid-soluble magnesium, calcium, manganese, iron, copper, sodium, and potassium in board, pulp and cellulose nanomaterials.

This standard applies to paper, cardboard, pulp and cellulose nanomaterials.

The detection limit of magnesium in this standard is 0.4mg/kg; the detection limit of calcium is 0.2mg/kg; the detection limit of manganese is 0.4mg/kg; the detection limit of iron is

The limit of detection is 1.0mg/kg; the detection limit of copper is 0.6mg/kg; the detection limit of sodium is 0.4mg/kg; the detection limit of potassium is 1.2mg/kg.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

The collection of GB/T 450 paper and paperboard samples and the determination of the longitudinal and transverse directions, front and back sides of the samples (GB/T 450-2008, ISO 186.

2002, MOD)

GB/T 462 Determination of the moisture content of paper, paperboard and pulp analysis samples (GB/T 462-2008, ISO 287.1985, ISO 638.

1978, MOD)

The collection of GB/T 740 pulp samples (GB/T 740-2003, ISO 7213.1981, IDT)

GB/T 6682 Analytical laboratory water specifications and test methods (GB/T 6682-2008, ISO 3696:1987, MOD)

GB/T 22877 Determination of burning residue (ash content) of paper, paperboard and pulp (525 degrees C) (GB/T 22877-2008, ISO 1762:2001, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Celulosenanomaterial

A material composed of cellulose with a diameter between 1nm and 100nm, and the internal or external structure is composed of nanometer (3.2) fibers

Elementary composition of the material.

3.2

Nanoscale

The size is between 1nm and 100nm.