

ICS 83.080.01

CCS G 31



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

**GB/T 42922-2023**

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**Plastics - Determination of matter extractable by organic  
solvents - Chemical methods**

**Issued on: August 6, 2023**

**Implemented on: March 1, 2024**

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**Issued by: State Administration for Market Regulation, China National  
Standardization Administration**

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### Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document has been modified to adopt ISO 6427.2013 "Determination of organic solvent extractables of plastics (conventional method)".

Compared with ISO 6427.2013, this document has many structural adjustments.  
Comparison list of structure number changes between the two files

See Appendix A.

The technical differences between this document and ISO 6427.2013 and their reasons are as follows.

---Replace ISO 565 (see 6.2) with normatively quoted GB/T 6005 to adapt to my country's technical conditions;

---Replace ISO 383 (see 6.3) with normatively cited GB/T 21297 to adapt to my country's technical conditions;

---Replace ISO 1773 (see 6.3) with normatively cited GB/T 22362 to adapt to my country's technical conditions;

---Change the "recognized analytical grade" in "5.1 Reagents" to "analytical grade and above" (see 5.1) to adapt to my country's technical requirements

parts to increase operability;

---Change "capable of maintaining a temperature of 105°C" to "temperature control accuracy  $\pm 2^{\circ}\text{C}$ " (see 6.11) to adapt to my country's technical conditions and increase the Operability and accuracy;

---Replace "accurate to 1mg" in 8.2 and 8.4 and "accurate to 0.2mg" in 8.5 to "accurate to 0.1mg" (see 8.2, 8.4,

8.5), to adapt to my country's technical conditions and improve accuracy;

---A glass filter crucible is added as polypropylene extraction equipment (see Table 1 in 8.6), and the "total number of refluxes has an impact on the experimental results"

Direct impact, if the number of refluxes per hour does not meet the requirements, the extraction time should be appropriately extended to ensure that the total number of refluxes meets the requirements.

should affect the experimental results. " (See Note a of Table 1 in 8.6) to increase test operability and accuracy;

--- Added "Footnote c. It may not be possible to bake to constant weight according to the above recommended temperature and time. Without affecting the test results, it is appropriate to

When increasing the drying temperature and/or extending the drying time. " (see footnote c of Table 2 in 8.6) to increase test operability and accuracy;

---Change "accurate to 0.05%" to "keep to two decimal places" (see 9.2) to adapt to my country's technical conditions and increase operability

performance and accuracy;

--- Added "Note. If there are other relevant standards, the tolerance of the two test results shall be subject to the relevant national standards. Such as GB/T 2412-2008

7.2 in GB/T 21993-2008 and 6.1 in GB/T 21993-2008 stipulate that the difference between the two results of parallel measurements shall not be greater than 0.2%;

GB/T 12006.4-1989 stipulates that the difference between the two results of parallel measurements shall not be greater than 0.3%. " (see note in Chapter 9), in order to improve

Determine operability and accuracy.

The following editorial changes have been made to this document.

---In order to coordinate with the existing standards, the name of the standard is changed to "Chemical Method for Determination of Organic Solvent Extractables of Plastics";

---Added Appendix A (informative) "Comparison between this document and ISO 6427.2013 structure number";

---Replaced ISO 1873-1 with the informative reference GB/T 2546.1-2006 (see B.1).

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

## 1 Scope

This document describes the determination of organic solvent extractables by extracting the extractable components from plastics by heating the organic solvent to around the boiling point.

content method. Appendix B describes a method of "determining the concentration of polypropylene at room temperature by extracting with heat, cooling with filtration, and evaporating the filtrate."

solubility in toluene" special extraction method.

This document applies to plastics whose organic solvent-extractable components are monomers, oligomers, polymers, plasticizers, stabilizers, etc.

Note 1. The type and percentage of extractable substances affects the performance of the plastic.

Note 2. The amount of specific components extracted using the solvents recommended in Table 1 is not the amount in the usual analytical chemistry sense.

Note 3. If this document is used to test plastics other than those listed in Table 1 and Table 2, the operating conditions shall be agreed upon by the relevant parties.

This document does not apply to plastics in contact with food or drinking water, nor to migration testing.

## 2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 6005 Basic dimensions of test sieve wire mesh, perforated plate and electroformed sheet mesh (GB/T 6005-

2008, ISO 565.1900, MOD)

GB/T 21297 Interchangeable tapered frosted joints for laboratory glass instruments (GB/T 21297-2007, ISO 383.1976, IDT)

GB/T 22362 Laboratory glass instrument flasks

ISO 308 Determination of acetone-soluble substances (resin content in the unmolded state)

of plastic phenolic molding materials [Plas-

### 3 Terms and definitions

There are no terms or definitions to be defined in this document.

### 4 Principles

The testing principle of this document is to heat the organic solvent until its temperature reaches around the boiling point and above, thereby removing the extractable components from the plastic.

Extracted into an organic solvent, and then the non-volatile substances obtained by completely evaporating the extract are the non-volatile organic solvent extractables; extraction

The change in plastic mass before and after is the content of organic solvent extractables (including volatile substances).