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

GB/T 5759-2025

Replacing GB/T 5759-2000

**Plastics - Ion exchange resin - Determination of water content
of anion exchange resins in hydroxide form by centrifugation**

塑料 离子交换树脂 离心法测定氢氧型阴离子交换树脂的含水量

(English Translation)

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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".

This document supersedes GB/T 5759-2000 "Method for Determination of Moisture Content in Hydroxy-Oxygen Anion Exchange Resins" and is consistent with GB/T 5759-2000.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

---Added the specification for "exchange post" (see 6.1);

---The term "moisture content meter" has been changed to "stoppered glass exchange column" (see 6.2, 6.1 in the 2000 edition), and the schematic diagram has been revised (see figure).

1 Scope

This document specifies the instrumentation, sample preparation, test procedures, and results for determining the water content of hydroxide-type anion exchange resins using the centrifugation method.

This document applies to the determination of water content in hydrogen-oxygen type anion exchange resins.

2 Figure 1 (2000 edition)

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this

document; for undated references, the latest version (including all amendments) applies to this document.

GB/T 5475 Sampling Method for Ion Exchange Resins

GB/T 5760 Determination of exchange capacity of hydroxyl-type anion exchange resins for plastic ion exchange resins (GB/T 5760-2025, ISO 4907-3:2023, MOD)

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and Definitions

The following terms and definitions apply to this document.

---The definition of "centrifuge" has been changed (see 6.4, 6.6 in the 2000 edition);

---The specifications for "centrifuge filter tubes" have been changed (see 6.5, 6.3 in the 2000 edition);

---The provisions for "pan balance", "stopwatch", "desiccator" and "weighing bottle" have been deleted (see 6.5, 6.7, 6.8 and 6.9 of the 2000 edition);

---Change "permissible difference" to "precision" (see Chapter 10, Chapter 10 of the 2000 edition).

This document is modified to adopt ISO 4907-2:2023 "Plastics - Ion exchange resins - Part 2: Centrifugation method for the determination of hydroxide anion exchangers". Replace the resin with water content.

This document has undergone significant structural adjustments compared to ISO 4907-3:2023. A comparison of the structural numbering changes between the two documents is provided below. See Appendix A for the table.

The technical differences between this document and ISO 4907-3:2023, and the reasons therefor, are as follows.

---The term "hydroxyl-type styrene-based anion exchange resin" and its definition are changed to the term "hydroxyl-type" and its definition (see 3.1) to suit the following purposes. my country's technological conditions;

---The normatively referenced GB/T 6682 has replaced ISO 3696 (see 5.3) to adapt to my country's technical conditions;

---The regulations for "sodium hydroxide solution," "sodium chloride solution," and "phenolphthalein indicator solution" have been added (see 5.6-5.8) to adapt to my country's technical requirements. Technical conditions;

---The specification for "exchange column" has been added (see 6.1) to adapt to my country's technical conditions;

---The term "moisture content meter" has been changed to "stoppered glass exchange column," and the dimensional requirements in the schematic diagram (see 6.2) have been removed to accommodate... my country's technological conditions;

---The requirement that "the bottom height of the centrifuge filter tube shall not be less than 30 mm" has been added (see 6.5) to comply with the technical requirements of this document;

---Change the setting of "maximum temperature not lower than 110°C" for the electric heating forced-air drying oven to "maximum temperature not lower than 150°C" (see 6.6) to adapt to... Technical requirements of this document;

---The normative reference GB/T 5475 (see 7.1) has been added to adapt to my country's technical conditions;

---Change "sampling according to the method specified in Appendix A" to "sampling according to the method specified in GB/T 5475" (see 7.1) to adapt to my country's national conditions. Technical conditions;

---Change "Prepare specimens according to the method specified in 7.2 of ISO 4907-3:2023" to the specific steps for preparing specimens (see 7.2~). 7.4), to facilitate operator use;

---The normatively referenced GB/T 5760 has replaced ISO 4907-3:2023 (see 8.4) to adapt to my country's technical conditions;

---Change "Determine the wet total exchange capacity EOH and wet strong group capacity EA of the sample according to ISO 4907-3" to "According to GB/T 5760-2025 specifies the determination of the wet-group total exchange capacity ET and the wet-group strong group capacity ES of a sample (see 8.4), to adapt to... my country's technological conditions;

---Precision has been increased (see Chapter 10) to adapt to my country's technological conditions. The following editorial changes have been made to this document.

---To align with existing standards, the standard title has been changed to "Determination of Hydroxy-Oxygen Anion Exchange Resins by Centrifugation in Plastic Ion Exchange Resins". Water content of lipids;

---Formula (2) has been added (see Chapter 9), simplifying the formula derivation in Annex B of ISO 4907-2:2023;

---Appendix A (informational) "Comparison Table of Structure Numbers in this Document with ISO 4907-2:2023" has been added (see Appendix A);

--- An Appendix B (Informative) section on "Precision" has been added (see Appendix B).

3.1 Hydroxide form

The ionic forms of anion exchange resins regenerated with excess strong alkali solution include strong base groups present as hydroxyl groups and free radical groups. A weak base group in which the ionamine group exists.

Note: Currently, the most common hydroxyl-type anion exchange resins have a styrene-based skeleton.

3.2 Water content

The equilibrium water content contained within ion exchange resin particles.

After the hydrated hydroxide-type anion exchange resin is centrifuged to remove external moisture, it is converted to the chloride form using hydrochloric acid solution, and then... Excess acid is washed away with water and ethanol. Based on the mass loss of the chloride form sample before and after drying, and the mass difference between the chloride and hydroxide form samples, the following can be calculated. Calculate the moisture content of the sample.

Unless otherwise specified, this document uses reagents of analytical grade or higher.