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

GB/T 5760-2025

Replacing GB/T 5760-2000

**Plastics - Ion exchange resin - Determination of exchange
capacity of anion exchange resins in hydroxide form**

塑料 离子交换树脂 氢氧型阴离子交换树脂交换容量的测定

(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".

Drafting.

This document supersedes GB/T 5760-2000 "Method for Determination of Exchange Capacity of Hydroxy-Oxygen Anion Exchange Resins" and is consistent with GB/T 5760-2000.

In comparison, aside from structural adjustments and editorial changes, the main technical changes are as follows.

- The term "volume exchange capacity" and its definition have been added (see 3.4);
- The definition of "exchange post" has been changed (see 6.1, 2000 edition of 6.1);
- The provisions for "separating funnel," "balance stand," "stopwatch," "weighing bottle," "burette," "pipette," "measuring cylinder," and "conical flask" have been deleted (see [link]).
(Sections 6.2, 6.5, 6.8, and 6.10-6.14 of the 2000 edition)
- The definition of "centrifuge" has been changed (see 6.2, 6.7 in the 2000 edition);
- Specifications for "centrifuge filter tubes" and "automatic potentiometric titrators" have been added (see 6.3 and 6.6);
- The sample preparation procedure has been modified (see 7.2~7.6, 7.2 and 7.3 in the 2000 edition);
- Added calculations for "wet-based full exchange capacity", "wet-based strong group capacity", and "volume exchange capacity" (see 9.1.1, 9.2.1, and 9.2.1).
- Change "allowable difference" to "precision" (see Chapter 10, Chapter 10 of the 2000 edition).

This document is modified to adopt ISO 4907-3:2023 "Plastics - Ion exchange resins - Part

3: Hydroxyl-type anion exchange resins".

"Volume determination".

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 normative references to GB/T 601 (see 5.7), GB/T 5475 (see 7.1), and GB/T 8331 (see 8.2) have been added to accommodate my...

The country's technological conditions;

---The term "hydrogen-oxygenated styrene-based anion exchange resin" and its definition are changed to the term "hydrogen-oxygenated" and its definition (see 3.1) to suit the following purposes.

my country's technological conditions;

---The term "volume exchange capacity" and its definition have been added (see 3.4) to adapt to my country's technological conditions and ion exchange resin production.

Product standards;

---The normatively referenced GB/T 6682 has replaced ISO 3696 (see 5.1) to adapt to my country's technical conditions;

---Change sections 5.2.1~5.2.3 and 5.3.1~5.3.3 in ISO 4907-3:2023 to "calibrate concentration according to GB/T 601" (see 5.7), to adapt to my country's technological conditions;

---The regulations for "centrifuges," "centrifuge filter tubes," "electronic balances," and "automatic potentiometric titrators" have been added (see 6.2~6.6) to accommodate...

my country's technological conditions;

---The phrase "sampling according to the methods specified in Appendix A" is changed to "sampling according to the methods specified in GB/T 5475" (see 7.1) to adapt to my country's national conditions.

Technical conditions;

---Change "Remove external free water from the sample according to ISO 4907-2:2023, 8.1" to the detailed test steps for removing external free water from the sample.

Steps (see 7.5 and 7.6) are provided to facilitate operator use;

---The normatively referenced GB/T 5759 has replaced ISO 4907-2:2023 (see 8.1) to adapt to my country's technical conditions;

---Added "Determine the wet apparent density of the sample according to GB/T 8331" (see 8.2) to facilitate operator use;

---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 name has been changed to "Plastic Ion Exchange Resins Hydroxy-type Anion Exchange Resins Exchange Capacity".

"Determination of Quantity";

--- List formulas (3) to (6) separately (see 9.2 and 9.4);

---Appendix A (informational) "Comparison Table of Structure Numbers in this Document with ISO 4907-3:2023" has been added (see Appendix A);

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

Please note that some content in this document may involve patents, and the issuing organization of this document assumes no responsibility for identifying these patents.

This document was proposed by the China Petroleum and Chemical Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Plastics Standardization (SAC/TC15).

1 Scope

This document specifies the measurement methods for the total exchange capacity, strong group capacity, weak group capacity, and volume exchange capacity of hydroxide-type anion exchange resins.

The prescribed instruments and equipment, sample preparation, test procedures, and result calculation and representation.

This document applies to hydrogen-oxygen type anion exchange resins.

2 Normative references

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.

This document.

GB/T 601 Preparation of Standard Titration Solutions for Chemical Reagents GB/T 5475 Sampling Method for Ion Exchange Resins GB/T 5759 Determination of water content in hydroxyl-type anion exchange resins by centrifugation method (GB/T 5759-2025, ISO 4907-2:2023, MOD) GB/T 6682 Specifications and test methods for water used in analytical laboratories (GB/T 6682-2008, ISO 3696:1987, MOD) GB/T 8331 Method for Determination of Wet Apparent Density of Ion Exchange Resins

3 Terms and Definitions

The following terms and definitions apply to this document.

Hydroxide form

The ionic forms of anion exchange resin regenerated with an excess of 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.

After converting the anion exchange resin to the hydroxyl form, the activity of the anion exchange resin per unit mass that can undergo exchange reactions with strong acid solutions increases.

Group quantity.

Note: Total switching capacity is also known as total switching capacity, maximum regeneration capacity, or maximum switching capacity.

strong-base group capacity After converting the anion exchange resin to the hydroxyl form, the number of active anion exchange resins per unit mass that can undergo exchange reactions with neutral salt solutions decreases.

Amount of sexual groups.

Note: The capacity of a strong base group is also known as the neutral salt decomposition capacity, the maximum strong base group regeneration capacity, the maximum strong base group regeneration capacity, or the strong base group exchange capacity.

Base group capacity.