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

GB/T 8331-2008

Replacing GB/T 8331-1987

**Determination of bulk density of ion exchange resins in wet
state**

离子交换树脂湿视密度测定方法

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Foreword

This standard replaces GB/T 8331-1987 "Determination of bulk density of ion exchange resins in wet state".

Compared with GB/T 8331-1987, editorial changes have been made to the wording of this standard.

This standard was proposed by the China Petroleum and Chemical Industry Association and is under the administration of the Subcommittee on General Methods and Products of the National Technical Committee on Plastics Standardization (SAC/TC 15/SC 4).

The organisations responsible for drafting this standard are the Xi'an Thermal Power Research Institute Co. Ltd., the National Synthetic Resin Quality Inspection Centre, Zhejiang Zhengguang Industrial Co. Ltd., the Jiangsu Suqing Water Treatment Engineering Group Co., and Zibo Dongda Chemical Co. Ltd.

The previous editions of the standard replaced by this one are: GB/T 8331-1987.

1 Scope

China's national method for measuring the wet bulk density of ion exchange resins - the mass of resin contained in one millilitre of settled bed, with the beads in the swollen state in which they are actually used. Ion exchange resin is bought and charged by volume: a water treatment plant, a power station condensate polisher or a pharmaceutical process is designed around a vessel of a given capacity, and the wet bulk density is what converts that volume into the amount of resin that has to be supplied and into the exchange capacity the bed will really have. Because the beads swell and shrink with their ionic form and with their water content, a figure measured dry or measured on a differently conditioned sample is

not comparable, and the standard therefore ties the measurement to a specific pretreatment, a specific removal of external water and a purpose-made resin density meter. The result is calculated from the mass of the density meter filled with pure water, the mass with the resin added and the volume the settled resin occupies, and it is reported in grams per millilitre to two decimal places as the mean of two determinations. Repeatability and reproducibility limits are given so that a producer's figure and a customer's figure can be compared. The method applies to the determination of the wet bulk density of all kinds of ion exchange resin in wet granular form.

This standard specifies the method for determining the wet bulk density of ion exchange resins.

This standard applies to the determination of the wet bulk density of all kinds of ion exchange resin in wet granular form.

2 Normative references

The following documents contain provisions which, through reference in this standard, constitute provisions of this standard. For dated references, subsequent amendments (excluding corrections) or revisions do not apply; however, the parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions. For undated references, the latest edition applies.

GB/T 5475 Ion exchange resins - Method of sampling

GB/T 5476 Ion exchange resins - Method of pretreatment

GB/T 5757 Ion exchange resins - Determination of water content

GB/T 6682 Water for analytical laboratory use - Specification and test methods

3 Apparatus and equipment

3.1 Ion exchange resin density meter, as shown in Figure 1: a graduated glass tube closed at the top by a ground glass stopper and standing on a flat base, with the volume of settled resin read directly off the graduations.

3.2 Analytical balance, accurate to 0.1 mg.

4 Reagents and solutions

Reagent water: water of grade three as specified in GB/T 6682.

5 Procedure

The procedure rests on three other standards of the ion exchange resin family before any

weighing is done: the sample is taken in accordance with GB/T 5475, it is pretreated in accordance with GB/T 5476 - and where the resin has to be converted into a particular ionic form the corresponding electrolyte solution may be passed through the sample after that pretreatment - and the external water is removed in accordance with GB/T 5757.

The remaining steps, 5.4 to 5.6, describe the weighing of the density meter with pure water, the addition of the resin sample and the settling and reading of the resin volume; they are given in the full standard.