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

GB/T 21650.3-2011

**Pore size distribution and porosity of solid materials by
mercury porosimetry and gas adsorption -- Part 3: Analysis of
micropores by gas adsorption**

压汞法和气体吸附法测定固体材料孔径分布和孔隙度 第3部分：气体吸附法分析
微孔

(English Translation)

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References

Foreword

GB/T 21650 "Determination of mercury porosimetry and gas adsorption solid materials the pore size distribution and porosity" is divided into three parts.

--- Part 1. Mercury;

--- Part 2. Gas adsorption analysis mesopores and macropores;

--- Part 3. Analysis of micropores by gas adsorption.

This section GB/T Part of 321,650.

2007 "Determination solid materials the pore size distribution and porosity 3 mercury porosimetry and gas adsorption method. This section identical with ISO 15901-3 Part I. Analysis of micropores by gas adsorption "(in English).

And ISO 15901-3:2007 as compared to this section made the following editorial changes.

--- Deleted international standards foreword;

--- The "ISO 15901 This part" to "this Part";

- Revised 15901-3 ISO .2007 range;
- Of ISO 15901-3:2007 and other international standards referenced, equivalents adopted as our standard replaces the corresponding international standards quasi. It is not identical with direct reference to international standards for our standards;
- Deleted "3 Terms and definitions" in 3.3;
- Remove the "4 symbol" in Note 2 back passage;
- Deleted "7 Examining Europe and America standard reference material supplying communications and information";
- Modify the abscissa in FIG. 3;
- The table in Appendix A A.2, "10 x 24cm³" to "10-24cm³".

This section of the Appendix A, Appendix B is an informative annex.

This part of the National and sorting method Standardization Technical Committee particles sieved (SAC/TC168) and focal points.

This section is drafted. Beijing Physical and Chemical Analysis and Testing Center, the machine Productivity Promotion Center.

Introduction

Spectroscopy, electron microscopy and scanning tunneling microscopy and adsorption method. Given the complexity of the composition of most porous solids, obtained by various methods the results are not always consistent with each other, a technology alone can not give all the information pore structure. Taking into account the particular adsorbent, a molecular sieve, Application of the catalyst carrier and the biologically active substance and other porous materials, the scope of application of the selected gas adsorption method is particularly important. Due to the dispersed Porous material having a fractal, adsorption measurement result depends upon the size of the adsorbate gas molecules (the effective diameter of the solid surface and takes up space). In addition, there may not be larger molecules enter the pores, and is turning repulsion effect.

Measurement techniques involved in this section, namely. low-temperature gas adsorption measurements and GB/T 21650.2-2008 and ISO 9277:1995 in a similar way; only part of the initial segment of the isotherm (such as. relative pressure 1 Scope this section GB/T 21650 specifies the assay microporous material by low surface area and pore volume of gas [1] - [7] method.

This section applies to the IUPAC classification I, II, IV or VI isotherm (see GB/T 21650.2-2008 in FIG. 1 and ISO 9277:1995), this section does not apply to chemical adsorption or absorption.

2 Normative references

The following documents contain provisions which, through reference GB/T 21650 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section. However, under this part are encouraged to reach Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 3723-1999 Sampling of chemical products for industrial use General Safety (idt ISO 3165. 1976) GB/T 21650.2-2008 mercury porosimetry and gas adsorption of solid materials the pore size distribution and porosity Part 2. gas adsorption Attached Analysis of mesopores and macropores (ISO 15901-2:2007, IDT) ISO 8213:2007 Solid chemicals industrial chemicals sampling techniques from powders to coarse lumps of particles of different shapes ISO 9277:1995 Determination of solid material gas adsorption BET specific surface area method

3 Terms and Definitions

The following terms and definitions apply to this section.

Adsorbate

Adsorbed gas.

[GB/T 21650.2-2008, Definition 3.1] 3.2 Adsorption Adsorbate outside the solid material enriched on the surface and the inner surface can be reached.

[GB/T 21650.2-2008, the definition 3.4] 3.3 Adsorbent Adsorption of solid material occurs.

[GB/T 21650.2-2008, the definition 3.3] 3.4 Adsorption isotherm at a constant temperature, the gas adsorption amount curve of a balance between the pressure of gas.

[GB/T 21650.2-2008, the definition 3.10]