
**Test methods for fibrous activated
carbon**

Méthodes d'essai pour les charbons actifs fibreux

This document is a preview generated by EVS



This document is a preview generated by EMS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Sampling method	3
5 Properties to be tested	3
5.1 General.....	3
5.2 Specific tests.....	3
6 Test methods	4
6.1 Specific surface area.....	4
6.1.1 Principle.....	4
6.1.2 Apparatus.....	4
6.1.3 Test procedure.....	5
6.1.4 Calculation of specific surface area.....	6
6.2 Pore volume.....	7
6.2.1 Principle.....	7
6.2.2 Apparatus and procedure.....	7
6.3 Physical properties of fibrous activated carbon.....	7
6.3.1 Fibre diameter.....	7
6.3.2 Tensile strength.....	9
6.4 Physical properties of fibrous activated carbon sheet.....	11
6.4.1 Principle.....	11
6.4.2 Mass per unit area.....	11
6.4.3 Tensile strength and elongation.....	12
6.5 Drying loss.....	13
6.5.1 Principle.....	13
6.5.2 Apparatus.....	13
6.5.3 Procedure.....	13
6.5.4 Calculation.....	13
6.6 pH value.....	14
6.6.1 Principle.....	14
6.6.2 Reagents and materials.....	14
6.6.3 Apparatus.....	14
6.6.4 Procedure.....	14
6.7 Total ash content.....	14
6.7.1 Principle.....	14
6.7.2 Apparatus.....	14
6.7.3 Procedure.....	15
6.7.4 Calculation.....	15
6.8 Toluene adsorption performance.....	15
6.8.1 Breakthrough adsorption test.....	15
6.8.2 Equilibrium adsorption amount.....	19
6.9 Methylene blue adsorption performance.....	22
6.9.1 Breakthrough adsorption test.....	22
6.9.2 Equilibrium adsorption amount.....	25
6.10 Iodine adsorption performance.....	29
6.10.1 Equilibrium adsorption amount.....	29
6.10.2 Reagents.....	29
6.10.3 Apparatus.....	30
6.10.4 Procedure.....	31
6.10.5 Calculation.....	31

6.10.6	Preparation of adsorption isotherm.....	32
6.10.7	Determining the amount of iodine equilibrium adsorption.....	33
Bibliography	34

This document is a preview generated by EVS

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*.

This document is based on the Japanese Industrial Standard JIS K 1477.

Introduction

Fibrous Activated Carbon (FAC) was developed and has been produced commercially in Japan since the 1980s. The demand for FAC products first increased in the northeast Asian region and has expanded globally since 2010. FAC contributes to conservation of the environment and improves the quality of life and health all over the world.

This document is a preview generated by EVS

Test methods for fibrous activated carbon

1 Scope

This document specifies test methods for determining the properties of fibrous activated carbon, including specific surface area, pore volume, fibre and sheet properties, mass loss on drying, pH value, total ash content, and performance for toluene adsorption, methylene blue adsorption and iodine adsorption.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 472, *Plastics — Vocabulary*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 6353-2, *Reagents for chemical analysis — Part 2: Specifications — First series*

ISO 6353-3, *Reagents for chemical analysis — Part 3: Specifications — Second series*

ISO 9073-1, *Textiles — Test methods for nonwovens — Part 1: Determination of mass per unit area*

ISO 9073-3, *Textiles — Test methods for nonwovens — Part 3: Determination of tensile strength and elongation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

fibrous activated carbon

activated carbon fibre

FAC

fibre, made from fibrous rayon, acrylic, phenol resin or pitch, which has been carbonized and then activated by reacting with steam, carbon dioxide or chemical methods at high temperature to give it higher ability to adsorb organic compounds from gas or aqueous solution

3.2

specific surface area

surface area of fibrous activated carbon per unit of mass

3.3

pore volume

total sum of the pore volume of fibrous activated carbon per unit of mass