

---

---

**Rubber, raw natural — Determination of  
average molecular mass and molecular-  
mass distribution by size exclusion  
chromatography (SEC)**

**AMENDMENT 1**

**iTeh STANDARD PREVIEW**

(standards.iteh.ai)

*Caoutchouc naturel brut — Détermination de la masse moléculaire  
moyenne et de la répartition des masses moléculaires par  
chromatographie d'exclusion stérique (SEC)*

**AMENDEMENT 1** Amd 1:2006

<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO 16564:2004/Amd 1:2006  
<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

Amendment 1 to ISO 16564:2004 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO 16564:2004/Amd 1:2006  
<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

ISO 16564:2004/Amd 1:2006

<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>

# Rubber, raw natural — Determination of average molecular mass and molecular-mass distribution by size exclusion chromatography (SEC)

## AMENDMENT 1

Page 5

Replace Clause 8 by the following:

### 8 Precision

**8.1** An interlaboratory test programme (ITP) was carried out using the guidelines established by ISO/TR 9272, *Rubber and rubber products — Determination of precision for test method standards*, in the period June to July 2002. A type 1 precision was determined on the basis of two measurements of molecular mass  $M_w$  on each of two different days. Each measurement is designated as a test result. Homogenized natural rubber (NR) was used as the test material and each laboratory used a set of supplied polystyrene standards for calibration. Data on  $M_w$  obtained from four laboratories were used to calculate the repeatability and reproducibility.

**8.2** The precision results as determined by this ITP may not be applied to acceptance or rejection testing for any group of materials or products without documentation that the results of this precision evaluation actually apply to the products or materials tested.

**8.3** The precision results are given in Table 2. General statements for the use of the precision results are cited below. These are given in terms of both the absolute precision,  $r$  and  $R$ , and the relative precision,  $(r)$  and  $(R)$ .

**Repeatability:** The repeatability, or local domain precision, of the test method has been established as the values given in Table 2. Two individual test results (obtained by the proper use of this International Standard) that differ by more than the tabulated values of  $r$ , in measurement units, or  $(r)$ , in percent, shall be considered as suspect, i.e. to have come from different populations. Such a decision suggests that some appropriate investigative action be taken.

**Reproducibility:** The reproducibility, or global domain precision, of the test method has been established as the values given in Table 2. Two individual test results obtained in different laboratories (by the proper use of this International Standard) that differ by more than the tabulated values of  $R$ , in measurement units, and  $(R)$ , in percent, shall be considered as suspect, i.e. to have come from different populations. Such a decision suggests that some appropriate investigative action be taken.

**Bias:** Bias is the difference between a measured average test result and a reference or true value for the measurement in question. Reference values do not exist for this test method and therefore bias cannot be determined.

Table 2 — Precision data for  $M_w$ 

Material	Mean value of $M_w$	Within laboratory			Between laboratories		
		$s_r$	$r$	( $r$ )	$s_R$	$R$	( $R$ )
NR	1 910 041	46 160	250 245	13	321 309	887 030	46

where

- $s_r$  is the repeatability standard deviation;
- $s_R$  is the reproducibility standard deviation;
- $r$  is the repeatability limit, in measurement units;
- $R$  is the reproducibility limit, in measurement units;
- ( $r$ ) is the repeatability (relative), in percent;
- ( $R$ ) is the reproducibility (relative), in percent.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

ISO 16564:2004/Amd 1:2006  
<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

ISO 16564:2004/Amd 1:2006

<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO 16564:2004/Amd 1:2006  
<https://standards.iteh.ai/catalog/standards/sist/0ae4223a-913f-4941-ba4f-6bdb4b9531db/iso-16564-2004-amd-1-2006>

---

---

**ICS 83.040.10**

Price based on 2 pages