



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 6261-3 : 2017

(JRMA/JSA)

**Rubber, vulcanized or
thermoplastic—Determination of
low-temperature properties—
Part 3: Low temperature stiffening
(Gehman test)**

ICS 83.060

Reference number : JIS K 6261-3 : 2017 (E)

Date of Establishment: 2017-10-20

Date of Public Notice in Official Gazette: 2017-10-20

Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area
Technical Committee on Chemical Products and
Analytical Methods

JIS K 6261-3:2017, First English edition published in 2018-01

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2018

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 the publisher.

Printed in Japan

KK/AT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
2A Terms and definitions	2
3 Principle	2
4 Apparatus	2
5 Calibration	5
6 Test pieces	5
6.1 Preparation of test piece	5
6.2 Conditioning of test piece	5
7 Procedure	5
7.1 Mounting of test piece	5
7.2 Stiffness measurements in liquid media	5
7.3 Stiffness measurements in gaseous media	6
7.4 Crystallization or plasticizer effect	7
8 Number of test pieces	8
9 Expression of test results	8
9.0 Calculation of torsional stiffness	8
9.1 Torsional modulus	8
9.2 Relative modulus	8
9.3 Apparent torsional modulus of rigidity	10
9.4 Expression of test results	11
10 Test report	11
Annex A (normative) Calibration schedule	13
Annex JA (informative) Low-temperature torsion test after long-term exposure	16
Annex JB (informative) Calculation formula for apparent torsional modulus of rigidity	18
Annex JC (informative) Comparison table between JIS and corresponding International Standard	20

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by The Japan Rubber Manufacturers Association (JRMA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law. Consequently **JIS K 6261**:2006 has been withdrawn and partially replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

JIS K 6261 series consists of the following 4 parts under the general title “*Rubber, vulcanized or thermoplastic—Determination of low-temperature properties*”:

Part 1: General introduction and guide

Part 2: Low-temperature brittleness

Part 3: Low temperature stiffening (Gehman test)

Part 4: Low-temperature retraction (TR test)

Rubber, vulcanized or thermoplastic— Determination of low-temperature properties—Part 3: Low temperature stiffening (Gehman test)

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 1432:2013**, Edition 4, with some modifications of the technical contents.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JC.

1 Scope

This Standard specifies a static procedure, known as the Gehman test, for determining the relative stiffness characteristics of vulcanized or thermoplastic rubbers over a temperature range from room temperature to approximately $-150\text{ }^{\circ}\text{C}$.

NOTE 1 The low-temperature torsion test after long-term exposure is described in Annex JA.

NOTE 2 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 1432:2013 *Rubber, vulcanized or thermoplastic—Determination of low-temperature stiffening (Gehman test)* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

WARNING 1 Persons using this Standard should be familiar with normal laboratory practice. This Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this Standard to establish appropriate safety and health practices.

WARNING 2 Certain procedures specified in this Standard might involve the use or generation of substances, or the generation of waste, that could constitute a local environmental hazard. Reference should be made to related laws and regulations on safe handling and disposal after use.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.