



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS R 1611 : 2010

(JFCA/JSA)

Measurement methods of thermal diffusivity, specific heat capacity, and thermal conductivity for fine ceramics by flash method

ICS 81.060.30

Reference number : **JIS R 1611 : 2010 (E)**

R 1611 : 2010

Date of Establishment: 1991-11-01

Date of Revision: 2010-09-21

Date of Public Notice in Official Gazette: 2010-09-21

Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Ceramics

JIS R 1611:2010, First English edition published in 2012-06

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

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

© JSA 2012

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
3 Terms and definitions	2
4 Principle	5
5 Thermal diffusivity measurement.....	6
5.1 Apparatus and instrument.....	6
5.2 Specimen	8
5.3 Measurement procedure	9
5.4 Calculation	10
6 Measurement of specific heat capacity	13
6.1 General.....	13
6.2 Flash method	13
6.3 Differential Scanning Calorimetry, DSC	23
6.4 Literature values	23
7 Measurement of thermal conductivity	24
7.1 General.....	24
7.2 Measurement method	24
7.3 Calculation	24
8 Guide to the rounding of numbers.....	24
9 Report.....	24
Annex A (informative) Principle of flash thermal diffusivity measurements	27
Annex B (informative) Recommendation on correction	28
Annex C (informative) Calculation method of thermal diffusivity by equiareal method.....	31
Annex D (informative) Characteristic evaluation method of emission apparatus	33
Annex E (informative) Standard materials and recommended values of thermal diffusivity	34
Annex JA (informative) Method for determination of thermal diffusivity independent of measurement condition.....	36