JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS H 8451 : 2021

(OSTEC/JSA)

Testing methods for measuring thermal cycle resistance and thermal shock resistance for thermal barrier coatings

ICS 25.220.99

Reference number : JIS H 8451 : 2021 (E)

PROTECTED BY COPYRIGHT

Date of Establishment: 2008-01-20

Date of Revision: 2021-02-22

Date of Public Notice in Official Gazette: 2021-02-22

Investigated by: Japanese Industrial Standards Committee

Standards Board for ISO area

JIS H 8451 : 2021, First English edition published in 2021-11

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 2021
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 HN

PROTECTED BY COPYRIGHT

Contents

Page

PROTECTED BY COPYRIGHT

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Osaka Science & Technology Center (OSTEC)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS H 8451**:2008), which has been technically revised.

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

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

PROTECTED BY COPYRIGHT

Testing methods for measuring thermal cycle resistance and thermal shock resistance for thermal barrier coatings

Introduction

This Japanese Industrial Standard has been prepared based on ISO 14188 : 2012, Edition 1, 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 JA.

1 Scope

This Standard specifies the testing methods for measuring thermal cycle resistance and thermal shock resistance of thermal barrier coatings mainly used for hot parts in gas turbines to evaluate the durability thereof, which are coated on the substrate by thermal spraying.

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

ISO 14188 : 2012 *Metallic and other inorganic coatings — Test methods for measuring thermal cycle resistance and thermal shock resistance for thermal barrier coatings* (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.

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.

JIS B 7507 *Vernier, dial and digital callipers*

JIS H 8402 *Test methods of tensile adhesive strength for thermal-sprayed coatings*

JIS Z 8401 *Rounding of numbers*

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1

thermal barrier coatings (TBC)

two-layer coating in which a bond coat performed on the surface of substrate and a top

PROTECTED BY COPYRIGHT