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

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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.

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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