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**Determination of thermal diffusivity of
continuous fiber-reinforced ceramic
matrix composites by the laser flash
method**

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Foreword

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Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Thermal diffusivity of continuous fiber-reinforced ceramic matrix composites	3
5 Apparatus and equipment	3
6 Test specimen	4
6.1 Shape	4
6.2 Thickness	4
6.3 Blackening treatment	4
6.4 Selection of test specimen for effective thermal diffusivity measurement	5
7 Measuring method	6
7.1 Measuring of test specimen	6
7.2 Measuring of test specimen temperature	6
7.3 Measuring of temperature rising curve	6
8 Calculation of thermal diffusivity	7
9 Correcting items	8
9.1 Laser pulsing time	8
9.2 Uneven heating by laser beam	8
9.3 Thermal loss of test specimen	9
9.4 Non-linearity of thermal diffusion	9
9.5 Surface treatment (blackening)	9
9.6 Thermal expansion	9
9.7 Method of rounding number	10
10 Report of measured results	10
Annex 1 (normative) Equal area method	12
Annex 2 (normative) Evaluation by deviation of temperature rising curve and model function	13
Annex 3 (normative) Calculation method of calibration coefficient for uneven heating	15
Annex 4 (normative) Calculation method of calibration coefficient for ther- mal loss	16
Annex 5 (normative) Calibration method of surface treatment (blackening)	17

Determination of thermal diffusivity of continuous fiber-reinforced ceramic matrix composites by the laser flash method

1 Scope This Japanese Industrial Standard specifies measuring method of thermal diffusivity from room temperature to 1300 K for continuous fiber-reinforced ceramic matrix composites composed of continuous fiber-reinforced ceramic and ceramic matrix by laser flash method.

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 0601 *Geometrical Product Specification (GPS)—Surface texture : Profile method—Terms, definitions and surface texture parameters*

JIS B 7502 *Micrometer callipers*

JIS B 7506 *Gauge blocks*

JIS R 1600 *Glossary of terms relating to fine ceramics*

JIS R 1611 *Test methods of thermal diffusivity, specific heat capacity, and thermal conductivity for fine ceramics by laser flash method*

JIS Z 8401 *Guide to the rounding of numbers*

3 Terms and definitions For the purpose of this Standard, the definitions given in JIS R 1600 and the following definitions apply.

- a) **effective thermal diffusivity** at a heterogeneous material composed of plural phases and different composition, structure and properties at the place, effective thermal diffusivity specified as the interior of sufficiently small domain compared with the test specimen is similar to be macroscopically uniform, and the domain indicates a heat response as if a uniform materials (see figure 2)

When the effective thermal diffusivity of each domain is equal, the thermal diffusivity of the whole test specimen is specified and it is equal to the thermal diffusivity of each domain.

- b) **temperature rising curve** a curve to indicate the time change of the back surface temperature of the test specimen by pulse heating
- c) **model function** analytical solution of the temperature rising curve calculated un-