

Translated and Published by Japanese Standards Association

 $JIS \ R \ 1625 : 2010$ 

(JFCA)

Weibull statistics of strength data for fine ceramics

ICS 81.060.30

**Reference number : JIS R 1625 : 2010 (E)** 

R 1625: 2010

Date of Establishment: 1996-07-01

Date of Revision: 2010-03-23

Date of Public Notice in Official Gazette: 2010-03-23

Investigated by: Japanese Industrial Standards Committee

Standards Board

Technical Committee on Ceramics

JIS R 1625:2010, First English edition published in 2011-07

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 2011

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
Intr	oduction1
1	Scope1
2	Normative references1
3	Terms and definitions — 1
4	Principle2
5	Weibull distribution function used for statistical analysis3
6 6.1 6.2	Statistical analysis method
7	Record ····································
Ann	ex A (informative) Example of analysis for estimation of population parameter using maximum likelihood method9
Ann	ex JA (informative) Comparison table between JIS and corresponding  International Standard16

# Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal of revision of Japanese Industrial Standard submitted by Japan Fine Ceramics Association (JFCA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently JIS R 1625:1996 is 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 a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

# Weibull statistics of strength data for fine ceramics

JIS R 1625: 2010

#### Introduction

This Japanese Industrial Standard has been prepared based on the first edition of **ISO 20501** published in 2003, modifying some of its technical contents to correspond to the single mode and two population parameter Weibull statistics.

The portions with continuous sidelines or dotted underlines are the matters in which the contents of the corresponding International Standard have been modified. A list of modifications with the explanations is given in Annex JA.

## 1 Scope

This Standard specifies the single mode and two population parameter Weibull statistics which is a method for determining the shape parameter (Weibull coefficient) and scale parameter of the instant break strength data obtained from the bending strength test and tensile strength test of fine ceramics at room temperature and elevated temperature.

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

 $ISO~20501:2003~Fine~ceramics~(advanced~ceramics,~advanced~technical~ceramics)\\ --Weibull~statistics~for~strength~data~(MOD)$ 

The symbols which denote the degree of correspondence in the contents in the corresponding 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 Standard, constitute provisions of this Standard. The most recent editions (including amendments) of the standards indicated below shall be applied.

- JIS R 1600 Glossary of terms relating to fine ceramics
- JIS R 1601 Testing method for flexural strength (modulus of rupture) of fine ceramics at room temperature
- JIS R 1604 Testing method for flexural strength (modulus of rupture) of fine ceramics at elevated temperature
- JIS R 1606 Testing methods for tensile strength of fine ceramics at room and elevated temperature
- JIS Z 8401 Guide to the rounding of numbers

#### 3 Terms and definitions

For the purpose of this Standard, the terms and definitions in **JIS R 1600** and the following apply.