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**Knoop hardness test — Part 1: Test
method**

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Mita Avanti, 3-11-28, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

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Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry based on the provision of Article 14, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act in response to a proposal for revision of Japanese Industrial Standard with a draft being attached, submitted by The Japan Iron and Steel Federation (JISF), an accredited standards development organization. This edition replaces the previous edition (**JIS Z 2251-1** : 2020), which has been technically revised.

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JIS Z 2251 series consists of the following 2 parts under the general title *Knoop hardness test*— :

Part 1: Test method

Part 2: Table of hardness values

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Knoop hardness test — Part 1: Test method

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 4545-1 : 2023**, Edition 3, 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 Knoop hardness test method for metallic materials for test forces from 0.009 807 N to 19.613 N.

This Standard specifies Knoop hardness tests for length of the long diagonal ≥ 0.020 mm.

The Knoop hardness test specified in this Standard is also applicable for metallic and other inorganic coatings including electrodeposited coatings, autocatalytic coatings, sprayed coatings and anodic coatings on aluminium.

This Standard is applicable to measurements normal to the coated surface and to measurements on cross-sections, provided that the characteristics of the coating (smoothness, thickness, etc.) permit accurate readings of the diagonal of the indentation. This Standard is applicable for coatings with thickness 0.007 mm or greater when testing normal to the coating surface, and for coatings with thickness 0.020 mm or greater when testing a cross-section of the coating. **ISO 14577-1** can be used for the determination of hardness from smaller indentations.

A periodic verification method is specified for routine checking of the testing machine in service by the user.

NOTE 1 Using the method specified in this Standard for determination from indentations <0.020 mm in diagonal length may cause large uncertainties in the results.

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

ISO 4545-1 : 2023 *Metallic materials — Knoop hardness test — Part 1: Test method* (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**.