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**Methods of measuring density and
specific gravity of solid**

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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 for revision of Japanese Industrial Standard submitted by The Society of Instrument and Control Engineers (SICE)/Japanese Standards Association (JSA) 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 Z 8807**:1976 is replaced with this Standard.

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Methods of measuring density and specific gravity of solid

1 Scope

This Japanese Industrial Standard specifies the methods of measuring density and specific gravity of solid by using pycnometers, Le Chatelier's pycnometers, the measuring method by weighing in liquid, the method by geometrical measurement, the acoustic method, the gas substitution methods, as well as the method of securing the metrological traceability in these measurements.

NOTE : From the viewpoint of a strict definition of the physical quantity, the term "density" should be preferred to "specific gravity". This does not mean, however, that this Standard restricts the use of the latter term in relation to any related laws or regulations.

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 K 0557 *Water used for industrial water and wastewater analysis*

JIS Z 8804 *Methods of measuring density and specific gravity of liquid*

3 Terms and definitions

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

3.1 density

the mass of the sample solid per unit volume

3.2 specific gravity

the value of the density of the sample solid divided by the density of water under a pressure of 101 325 Pa

When the density of the sample solid at temperature t °C is divided by the density of water at temperature t_0 °C, the specific gravity is indicated as t/t_0 °C.

NOTE : When the specific gravity t/t_0 °C is converted to specific gravity $t_0/4$ °C, the specific gravity t/t_0 °C is multiplied by the specific gravity $t_0/4$ °C of water at t_0 °C.

3.3 metrological traceability

property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty

NOTE : Calibration refers to a set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a