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(JISF)

# Iron and steel — Determination of zirconium — Part 1: Xylenol orange spectrophotometric method

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.



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## Foreword

This Japanese Industrial Standard has been established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by The Japan Iron and Steel Federation (JISF) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act. This Standard partially replaces **JIS G 1232** : 1980, which has been withdrawn.



Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, published patent application or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, published patent application or utility model rights.

**JIS G 1232** series consists of the following 2 parts under the general title *Iron and steel — Determination of zirconium* :

Part 1: *Xylenol orange spectrophotometric method*

Part 2: *Xylenol orange spectrophotometric method after fluoride co-precipitation separation*

# Iron and steel — Determination of zirconium — Part 1 : Xylenol orange spectrophotometric method

## 1 Scope

This Japanese Industrial Standard specifies xylenol orange spectrophotometric method among the methods for determination of zirconium in steel.

This method is applicable to determination of zirconium content (mass fraction) of 0.005 % or over up to and including 0.60 % in niobium-free steel.

NOTE The determination range in **JIS G 1232** series is shown in Table 1.

**Table 1 Determination range in JIS G 1232 series**

| Standard No. | Determination range [mass fraction (%)] |
|---|---|
| **JIS G 1232-1** | 0.005 or over up to and incl. 0.60 |
| **JIS G 1232-2** | 0.01 or over up to and incl. 0.60 |

## 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 G 1201 *Iron and steel — General rules for analytical methods*

JIS Z 8402-6 *Accuracy (trueness and precision) of measurement methods and results — Part 6 : Use in practice of accuracy values*

## 3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS G 1201**, Clause **3** apply.

## 4 General

General requirements for determination shall conform to **JIS G 1201**.

## 5 Summary

The sample is decomposed with a suitable acid and the residue is fused with potassium disulfate and combined with main solution. After removing the interference of iron, copper or the like with mercaptoacetic acid and thiourea, the absorbance is measured by generating xylenol orange-zirconium complex using a spectrophotometer at a wavelength of 540 nm.