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(JAA/JSA)

**Methods for determination of boron
in aluminium and aluminium alloys**

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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 Japan Aluminium Association (JAA)/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 H 1365 : 1973** is replaced with this Standard.

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In the event of any doubts arising as to the contents,
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Methods for determination of boron in aluminium and aluminium alloys

1 Scope This Japanese Industrial Standard specifies the methods for determination of boron in aluminium and aluminium alloys.

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS H 1307 *Methods for inductively coupled plasma emission spectrometric analysis of aluminium and aluminium alloys*

JIS H 1351 *General rules for chemical analysis of aluminium and aluminium alloy*

3 General items The general items common to analytical methods shall be in accordance with **JIS H 1351**.

4 Classification of quantitative determination methods The quantitative determination of boron shall be in accordance with any one of the following:

- a) **Carminic acid absorptiometry** This method shall be applied to the sample of which the boron content is not less than 0.01 % (m/m) and not more than 0.07 % (m/m).
- b) **Curcumine absorptiometry by extractive separation with 2-ethyl-1,3-hexane diol** This method shall be applied to the sample of which the boron content is not less than 0.000 5 % (m/m) and not more than 0.01 % (m/m).
- c) **ICP emission spectrometric analysis by extractive separation with 2-ethyl-1,3-hexane diol** This method shall be applied to the sample of which the boron content is not less than 0.001 % (m/m) and not more than 0.01 % (m/m).
- d) **ICP emission spectrometric analysis** This method shall be applied to the sample of which the boron content is not less than 0.01 % (m/m) and not more than 0.25 % (m/m).

5 Carminic acid absorptiometry

5.1 Summary Decompose the sample with sodium hydroxide and sodium peroxide, and add sulfuric acid to acidify. Take an aliquot of a portion of the solution, add carminic acid to allow to colorate boron, and measure the absorbance.

5.2 Reagents The reagents shall be as follows:

- a) **Sulfuric acid (1+1)**
- b) **Sodium hydroxide solution** Dissolve 10 g of sodium hydroxide in 100 ml of water.