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**Determination of diffusible hydrogen
content in steel weld metal**

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Foreword

This Japanese Industrial Standard has been 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 Japan Welding Engineering Society (JWES)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS Z 3118** : 2007), which has been technically revised.

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Determination of diffusible hydrogen content in steel weld metal

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 3690** : 2018, Edition 4, 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 JD.

1 Scope

This Standard specifies the procedure for the determination of diffusible hydrogen, measured by the gas chromatography method or hot carrier gas extraction method, in steel weld metal arising from the welding of such steels using arc welding processes.

The welding processes covered in this Standard are shielded metal arc welding, submerged arc welding, gas-shielded metal arc welding (hereafter referred to as gas-shielded arc welding) and self-shielded arc welding.

NOTE 1 Diffusible hydrogen content is used as one of the factors in calculating the preheating temperature to prevent cold cracking of the weld or the properties of the welding material.

The calculation of the preheating temperature is carried out by converting the diffusible hydrogen content per mass of deposited metal calculated in **6.2** by the relational formula given in Annex JC.

NOTE 2 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 3690 : 2018 *Welding and allied processes — Determination of hydrogen content in arc weld metal* (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**.

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 3106 *Rolled steels for welded structure*

JIS K 0114 *General rules for gas chromatography*

JIS Z 3001-7 *Welding and allied processes — Vocabulary — Part 7: Arc welding*