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**Iron and steel—Determination of
carbon—Part 3: Infrared absorption
method after combustion**

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In the event of any doubts arising as to the contents,
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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 Iron and Steel Federation (JISF) 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 G 1211-3:2017** is replaced with this Standard.

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JIS G 1211 series consists of the following 4 parts under the general title “*Iron and steel-Determination of carbon*”:

Part 1: Combustion gravimetric method

Part 2: Gas volumetric method after combustion

Part 3: Infrared absorption method after combustion

Part 4: Infrared absorption method after combustion in a furnace with preheating or peak separating

Part 5: Determination of non-combined carbon

Iron and steel—Determination of carbon— Part 3: Infrared absorption method after combustion

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 9556:1986**, Edition 1 and **ISO 15350:2000**, Edition 1, 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 method for determining carbon content in iron and steel by the infrared absorption method after combustion. This method is applicable to the carbon contents between 0.001 % to 5.0 % (mass fraction) inclusive, or when using reagents or carbon standard solutions for construction of calibration curve, between 0.003 % to 4.5 % (mass fraction) inclusive.

NOTE 1 Determination range of each standard in **JIS G 1211** series is shown in Table 1.

Table 1 Determination ranges in JIS G 1211 series

Standard number	Determination range [mass fraction (%)]
JIS G 1211-1	Up to 0.1
JIS G 1211-2	0.05 to 5.0
JIS G 1211-3	0.001 to 5.0
JIS G 1211-4	0.000 3 to 0.010
JIS G 1211-5	0.3 to 3.0

NOTE 2 The analysis method specified in this Standard may detect a higher carbon content than the actual carbon content of the test portion due to inclusion of the carbon adhered or adsorbed to the surface of the test portion in the analysis result. The error, however, is usually only about 0.000 2 % and never more than 0.000 5 % in mass fraction. For determination of trace amount carbon by excluding the influence of carbon adhered or adsorbed to the surface of the test portion, the method specified in **JIS G 1211-4** can be used. In the event of any doubt arising as to analytical value of carbon content of 0.001 % to 0.010 % (mass fraction), the analytical value obtained according to **JIS G 1211-4** should be adopted.

NOTE 3 The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows.