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BSI Standards Publication

European certified reference materials (EURONORM-CRMs) for the determination of the chemical composition of iron and steel products prepared under the auspices of the European Committee for Iron and Steel Standardization (ECISS)

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National foreword

This Published Document is the UK implementation of CEN/TR 10317:2013. It supersedes PD CEN/TR 10317:2009 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/102, Methods of Chemical Analysis for Iron and Steel.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

European certified reference materials (EURONORM-CRMs) for the determination of the chemical composition of iron and steel products prepared under the auspices of the European Committee for Iron and Steel Standardization (ECISS)

Matériaux de référence certifiés européens (EURONORM-MRC) destinés à la détermination de la composition chimique des produits en acier et en fonte préparés sous les auspices du comité européen de normalisation du fer et de l'acier (ECISS)

Europäische zertifizierte Referenzmaterialien (EURONORM-ZRMs) für die Bestimmung der chemischen Zusammensetzung von Eisen- und Stahlerzeugnissen, hergestellt unter der Schirmherrschaft des Europäischen Komitees für Eisen- und Stahlnormung (ECISS)

This Technical Report was approved by CEN on 27 August 2012. It has been drawn up by the Technical Committee ECISS/TC 102.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (CEN/TR 10317:2013) has been prepared by Technical Committee ECISS/TC 102 “Methods of chemical analysis for iron and steel”, the secretariat of which is held by SIS.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TR 10317:2009.

In comparison with the previous edition of CEN/TR 10317:2009, the following significant technical changes were made:

— Clause 2, definition of Certified Reference Material;

— in 5.1, change of the procedure how to carry out the four required determination.

Introduction

In accordance with the definition in ISO Guide 30, Amendment 1:2008, a Certified Reference Material (CRM) described in this CEN Technical Report is a "reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability". Furthermore, it is accompanied by a certificate issued by the producing organisation on behalf of the Co-ordinating Committee (COCOR) of ECISS after approval by the participating laboratories and all the producing organisations:

a) France:

   1) ArcelorMittal Maizières [former Institut de Recherches de la Sidérurgie Française (IRSID)],

   2) Centre Technique des Industries de la Fonderie (CTIF);

b) Germany: Iron and Steel CRM Working Group (AGZRM) comprising:

   1) BAM Bundesanstalt für Materialforschung und -prüfung,

   2) Max-Planck-Institut für Eisenforschung (MPI),

   3) Stahlinstitut VDEh;

c) Nordic Countries: Nordic CRM Working Group, (NCRMWG) comprising:

   1) Swerea KIMAB [former Swedish Institute for Metals Research (SIMR)],

   2) Jernkontoret;

d) United Kingdom: Bureau of Analysed Samples Limited (BAS).

Since 1968 EURONORM-CRMs have been analysed by laboratories in most countries in the European Union (EU) or former European Community (EC).

Pending their eventual replacement by EURONORM-CRMs, a number of former national CRMs prepared, analysed and certified by laboratories in Germany, France and the United Kingdom respectively, were accepted as EURONORM-CRMs after their accuracy had been checked by other European laboratories. This procedure ceased in 1990.

1 Scope

This Technical Report describes the classification, method of sample preparation, certification main rules and certificate content of the EURONORM-CRMs.

It also lists the sample presentation of the corresponding producer's organisations and the distributing sources.

2 Classification of EURONORM-CRMs

EURONORM-CRMs, prepared under the auspices of ECISS, are classified into two main groups:

— cast and wrought materials: irons, steels, special alloys and ferro-alloys;

— non-metallic materials: raw materials (ores, concentrates, additives and refractories) and by-products (slags, dusts and similar materials).

Besides this first generic classification, EURONORM-CRMs are grouped into the following categories:

a) **From 001 to 099 – high purity irons and unalloyed steels**

Normally no element has a mass content greater than the limit values in the following list:

1) silicon, limit value 1,0 %;

2) manganese, limit value 1,5 %;

3) chromium and nickel, limit value for each 0,5 %;

4) cobalt, copper and tungsten, limit value for each 0,3 %;

5) other elements, limit value for each 0,10 %;

6) boron, carbon, phosphorus, lead and sulphur, no limit value.

b) **From 101 to 199 – low alloy steels**

The content of one or more elements is greater than the limit for unalloyed steels but none exceeds 5 %. The sum of these alloying elements remains under 10 %.

c) **From 201 – 299 – highly alloyed steels**

The content of one or more elements is greater than 5 % or the sum of all these alloying elements is at least 10 %. Nevertheless the iron content will normally be greater than 50 %.

d) **From 301 to 399 - special alloys**

The iron content is less than 50 %.

e) **From 401 to 499 – pig irons and cast irons**

f) **From 501 to 599 – ferro-alloys**

g) **From 601 to 699 – ores, concentrates, sinters and miscellaneous materials**