Kemiska analysemetoder för järnmetaller – Bestämning av fosfor i järn och icke legerade stål – Spektrofotometrisk metod (Molybdenum blue)

Chemical analysis of ferrous materials – Determination of phosphorus in non-alloyed steels and irons – Molybdenum blue spectrophotometric method


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Contents

Foreword ..............................................................................................................................................................3
1 Scope .................................................................................................................................................................4
2 Normative references .....................................................................................................................................4
3 Principle ..........................................................................................................................................................4
4 Reagents ........................................................................................................................................................4
5 Apparatus .......................................................................................................................................................6
6 Sampling ........................................................................................................................................................6
7 Procedure .......................................................................................................................................................6
8 Expression of results .....................................................................................................................................8
9 Note .................................................................................................................................................................9
10 Test report .....................................................................................................................................................9
Annex A (informative) Precision data ...............................................................................................................10
Bibliography ......................................................................................................................................................11
Foreword

This European Standard (EN 10184:2006) has been prepared by Technical Committee ECISS/TC 20 “Methods of chemical analysis of ferrous products”, the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2006, and conflicting national standards shall be withdrawn at the latest by August 2006.

This European Standard supersedes EN 10184:1989.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.
1 Scope

This European Standard specifies a method for the molybdenum blue spectrophotometric determination of phosphorus in non-alloyed steels and irons.

The method is applicable to non-alloyed steels and irons with phosphorus contents from 0,005 % to 0,25 % (m/m).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 14284, Steel and iron — Sampling and preparation of samples for the determination of chemical composition (ISO 14284:1996)

3 Principle

Dissolution of a test portion in nitric and hydrochloric acids and controlled addition of perchloric acid.

Formation of the phosphomolybdate complex after removal of silicon and arsenic and reduction with hydrazine sulphate to molybdenum blue.

Spectrophotometric measurement of the blue complex at a wavelength of 680 nm or 825 nm.

4 Reagents

4.1 General

During the analysis, unless otherwise stated, only reagents of recognized analytical grade shall be used and only distilled water or water of equivalent purity.

Blank tests shall verify that the relevant reagents are free from phosphorus. Whenever necessary, the results shall be corrected accordingly. Grades giving high blank values are unsuitable and should be discarded.

4.2 Hydrochloric acid

\( \rho \) about 1,19 g/ml.

4.3 Nitric acid

\( \rho \) about 1,40 g/ml.

4.4 Perchloric acid

\( \rho \) about 1,67 g/ml.