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English version

Optical emission analysis of low alloy steels (routine method) - Method for determination of C, Si, S, P, Mn, Cr, Ni and Cu

Analyse des aciers faiblement alliés par spectrométrié d´émission optique (méthode de routine) - Méthode de détermination de C, Si, S, P, Mn, Cr, Ni et Cu

Optische Emissionsanalyse von niedriglegierten Stählen (Reihenanalyse) - Verfahren zur Bestimmung von C, Si, S, P, Mn, Cr, Ni und Cu

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Foreword

This document (CR 10320:2004) has been prepared by ECISS /TC 20, "Methods of chemical analysis of ferrous products".

1 Scope

This document specifies an optical emission spectrometry spark source routine standard method for multi-element analysis of unalloyed steel and iron.

2 Test sample preparation

Prepare reference materials, test samples and setting up samples, by grinding to provide a uniform flat surface. It is recommended a surface grinder with aluminium oxide, or zirconium oxide, abrasive to be employed with a coarse grit of 60 - 100.

3 Calibration of the instrument

3.1 Determination of calibration curve

Analyse a series of reference materials (min. 5) for the element intensity/matrix intensity ratio according to the pattern shown in Figure 1.

Calculate the average intensity for each reference material.

NOTE In (Figure 1) the first group values into parentheses refers to odd ns.

Correlate the average intensity ratio with the concentration of test element.

$$c\% = \sum_{i=0}^{n} A_i I^i \qquad (1)$$

where:

A_i means correlation constants;

I^i means unknown values (intensity ratio).

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