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**ALUMINIUM AND ALUMINIUM ALLOYS -  
CHEMICAL ANALYSIS - GUIDELINE FOR  
SPARK OPTICAL EMISSION  
SPECTROMETRIC ANALYSIS**

National Standards  
Authority of Ireland  
Glasnevin, Dublin 9  
Ireland

Tel: +353 1 807 3800

Fax: +353 1 807 3838

<http://www.nsai.ie>

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EUROPEAN STANDARD

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English Version

## Aluminium and aluminium alloys - Chemical analysis - Guideline for spark optical emission spectrometric analysis

Aluminium et alliages d'aluminium - Analyse chimique -  
Directives pour l'analyse par spectrométrie d'émission  
optique à étincelles

Aluminium und Aluminiumlegierungen - Chemische  
Analyse - Leitfaden für die optische  
Funkenemissionsspektralanalyse

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**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## **Foreword**

This European Standard (EN 14726:2005) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by March 2006, and conflicting national standards shall be withdrawn at the latest by March 2006.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## EN 14726:2005 (E)

### Introduction

In optical atomic emission spectral analysis (OES) with excitation by electric spark discharges, (S-OES), a small portion of the sample is thermally atomized through the erosion of an electric spark. In the spark discharge, the aerosol is atomized, partially ionised and excited to emit optical radiation. The characteristic radiation for each element is used in OES for element detection and for the quantitative determination of the element contents.

The test result obtained on a small test portion (mostly less than one milligram per spark spot) of one or more laboratory samples is referred either to a laboratory sample or to many tons of a melt or a cast product of aluminium or aluminium alloys. Cast structure and segregation interfere with measurement.

S-OES is suitable for determining the chemical composition of metal samples as defined in technical specifications. S-OES serves as inspection, test and measuring equipment for alloy compositions to control and inspect the manufacturing and casting processes. For those purposes, laboratory samples are taken from the liquid metal after melting down of the alloying constituents and during casting in different process stages.

Besides process inspection, S-OES, within the framework of a chemical-analytical service, facilitates the preparation of a test report which refers to the laboratory sample or to an agreed sample area of that sample.

The testing equipment, including software used in the testing laboratories, is subject to change. Therefore, these guidelines describe the common principles.

It gives guidance to specific criteria which should be met and the detailed documentation for the laboratory procedures to obtain traceable test results with uncertainty intervals.

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