

Ultra-low carbon steel spectrometer



Overview

Identification of stainless steels and low alloy steels, including carbon analysis down to 70 ppm and instant CE (carbon equivalents) calculations. Powerful laser, on-board argon purge and high resolution spectrometer are built for carbon. SPECTRO, the arc/spark innovation leader, has spent 40-plus years developing superlative OES instruments. Recently it's perfected solid-state detectors using proprietary CMOS+T technology to revolutionize high-end arc/spark OES analysis — with SPECTROLAB S. This instrument's efficiency and economy. Optical emission spectroscopy, or OES, is a well trusted and widely used analytical technique used to determine the elemental composition of a broad range of metals. Whether you need to determine the endpoint of a batch process or to rapidly update. Large-scale production of high-grade steels requires accurate and rapid analyses at various stages, from raw material purchases to finished products. Steel testing spans multiple stages—segregation, correction, and ensuring compliance with strict standards. An efficient spectrometer for steel. To analyze the elements in metals with cordless handheld instruments, Fraunhofer ILT is developing a method and conceptual setup to use laser-induced breakdown spectrometry (LIBS) with highly integrated components; furthermore, it is investigating its analytical performance in the laboratory.



Article Content

Jul 27, 2025

Analysis of Iron and Steel with ARL easySpark Optical Emission Spectrometer

The ARL easySpark is able to determine all the elements necessary in your current and future applications, in all possible qualities of iron and steel: white or grey cast iron, alloyed cast iron, low

Jan 23, 2026

Spectrometers for Steel Testing in Steel Industry Plants

Enhance steel testing with our Spectrometers. Ensure accurate & precise analysis of Carbon, Nitrogen, Oxygen & fine wire, foil, thin analysis in

Dec 07, 2025

Chemical compositions of steels used; ultra-low carbon

The effects of excess carbon on static recrystallization of cold-rolled steel sheets were studied using Ti-bearing ultra-low carbon steels with and without carbon in

Nov 26, 2025

Stationary OES | Optical Emission Spectrometer | Hitachi High-Tech

It's suited to smaller foundries and metal processing companies that don't need low detection limits. For bigger foundries and steel plants, it's also a fast, reliable backup analyzer.

Feb 09, 2026

Laser-ultrasonic absorption measurements in low carbon steels

Measurements made on samples of three low-carbon steel grades, namely ultra low carbon (ULC), low carbon (LC), and high strength, low-alloy steels (HSLA), clearly show that

Sep 15, 2025

Enhanced characterization of non-metallic inclusions in ultra-high ...

Enhanced characterization of non-metallic inclusions in ultra-high-strength steels using advanced synchrotron-based X-ray absorption spectroscopy and chemometric analysis Mourad

Oct 06, 2025

Layout 1

Highly reliable and easy-to-own, this modern process mass spectrometer (MS) delivers faster, more complete, lab-quality online gas composition analysis, enabling real-time optimization of many hot

Jul 27, 2025

Carbon analysis of steel using compact spectrometer and passively Q ...

The trace carbon (C) composition in ultra-low carbon steel is measured by Laser-Induced Breakdown Spectroscopy (LIBS). Five standard steel samples, with C content between 9 and 89

Oct 18, 2025

Research Progress on Ultra-Low Temperature Steels: A

Thus, there is a growing demand for ultra-low temperature alloys as critical materials for storage and transportation facilities. Currently, ultra-low

Jun 22, 2026

Carbon Steel Analysis by Spark Spectrometry

The document outlines the ASTM E415-17 standard test method for analyzing carbon and low-alloy steel using spark atomic emission spectrometry, detailing the scope, applicable elements, and their mass

Nov 22, 2025

Analysis of Carbon and Low-Alloy Steel by Spark Atomic ...

of 21 alloying and residual elements in carbon and low-alloy thickness between 10 mm and 38 mm has been found to be steels by spark atomic emission vacuum spectrometry in the most practical.

Mar 06, 2026

(PDF) Characterization of ultra-low carbon steel: A

Ultra-low carbon steel, in the form of a sheet, was collected from the Mughal Steel Industry, Peshawar, Pakistan.

Mar 07, 2026

Mobile spectroscopy for determining carbon content in steel

Fraunhofer ILT has focused on carbon detection since determining its content in steel is not only economically important, but poses technical challenges. Concentrations down to the range of 0.01

Aug 29, 2025

Quantitative analysis of trace carbon in steel samples using collinear ...

Abstract The trace carbon (C) composition in ultra-low carbon steel is measured by Laser-Induced Breakdown Spectroscopy (LIBS). Five standard steel samples, with C content between 9

Apr 05, 2026

Ultra-low carbon bainitic steel plate steels: Processing ...

The behavior of Ultra Low Carbon Bainitic (ULCB) and High Strength Low Alloy (HSLA) steels has been analyzed when test specimens are loaded in

Nov 15, 2025

ASTM E1009 Standard Practice for Evaluating an Optical Emission

ASTM E1009 offers a formal practice to test the performance of an optical emission vacuum spectrometer (OES) applied in the analysis of carbon and low-alloy steels.

Feb 02, 2026

ISIJ Int. 51(11): 1778-1787 (2011)

The need of such on-line process control for the production of clean steel has driven the development of PDA-OES technique for rapid determination of micro-inclusion characteristics. With the advent of

Oct 21, 2025

Characterization of Nonmetallic Inclusions in Low-Alloyed Steels

The characteristics of nonmetallic inclusions (NMIs) in low-alloyed steel samples taken during ladle treatment before and after Ca treatment are evaluated using the pulse distribution analysis optical

Nov 02, 2025

Trace Metal Analysis

SPECTROLAB S is designed to supply the fastest possible measurements; greatest throughput; lowest limits of detection; longest uptime; and most future-proof flexibility available.

Mar 18, 2026

Standard Test Method for Analysis of Carbon and Low-Alloy Steel by ...

1.1 This test method covers the simultaneous determination of 21 alloying and residual elements in carbon and low-alloy steels by spark atomic emission vacuum spectrometry in the mass

Oct 26, 2025

Stationary OES | Optical Emission Spectrometer

Optical emission spectroscopy, or OES, is a well trusted and widely used analytical technique used to determine the elemental composition of a broad range of

Jun 10, 2026

Comparative Analysis of Carbon Content Measurement

Laser-Induced Breakdown Spectroscopy (LIBS): LIBS is a portable method that can measure carbon content quickly in the field. However, its

May 14, 2026

A closer look at low-carbon sheet steels

In ultra-low-carbon (ULC) steel, the carbon level is typically less than 50 parts per million, which is the same as less than 0.005 percent. As a result,

Oct 27, 2025

Experimental processing of ultra-low carbon steel using

This paper presents experimental process of ultra-low carbon (ULC) steel using vacuum heat treatment. After adjusting the chemical compositions as

Aug 15, 2025

Z-902 : Carbon Analyzer

Identification of stainless steels and low alloy steels, including carbon analysis down to 70 ppm and instant CE (carbon equivalents)

Dec 06, 2025

Measured spectra of the ultra-low carbon steel samples

In this study, we observed a significant influence of carbon contamination on LIBS measurement. Fig. 3 shows the measured spectra of the ultra-low carbon steel

Contact Us

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