

OES-analysis of metals

- Get a fast determination of alloy elements and impurities in e.g. steel



Why choose an OES-analysis?

Optical Emissions Spectrometry (OES) is a fast and precise method of determining alloy elements and impurities in metal alloys, e.g. steel.

An analysis by Optical Emission Spectrometry (OES) supplies valuable documentation regarding:

- Determining material type
- Assessing accordance with material requirements in standards and specifications
- Determining optimum heat treatment and assessing weldability and repair procedures
- Assessing corrosion resistance
- Getting a fast reply.

What kind of metals?

FORCE Technology can analyse low- and microalloyed steel, tool steel, stainless steel, cast iron, automat steel and special alloys with titanium, copper, aluminium, nickel or cobalt.

Get the result the same day

FORCE Technology aims at providing results to OES-analyses very quickly. In general, the result of an analysis may be obtained the very day we receive the sample. At large assignments, delivery takes place as agreed.

Get an answer the first day

An OES-analysis has a very high degree of precision and the quality of the analysis is ensured by frequent use of comparable certified reference materials and by participation in inter calibrations (comparison of results with other laboratories). The relative uncertainty is below 3% on most applications.

The OES-analysis at FORCE Technology is accredited by the Danish accreditation body (DANAK), and FORCE Technology is the leading operator in this field in Denmark.

Samples

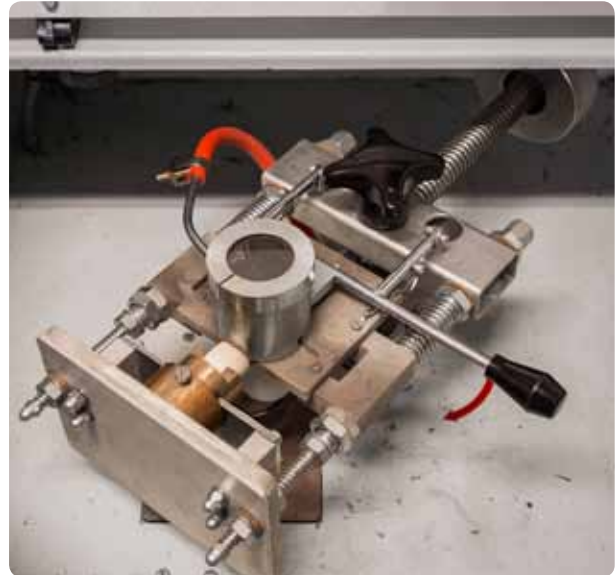
Samples of varied nature and shape may be analysed. The analysis is always performed after prior surface treatment of the sample. As only a small part of the sample is analysed it is important that this part is homogenous. In certain cases, such as cast iron, the material is melted down before an analysis is made.

Reporting

The analysis result includes up to 30 alloying elements and are always supplied as a report. For ironbased alloys it is possible to obtain an accredited report.

Competencies

Through several years FORCE Technology has been performing specialised work within welding, corrosion and metallurgy. Therefore, FORCE Technology also have the competency to provide consultancy on the achieved analysis results.



Melting down of a cast iron sample

Analysis by Optical Emission Spectrometry



Performed using a SPECTROLAB M11 instrument according to ASTM E 415
With instrument specific modifications.

Date	19-11-2015	Program	Fe-30			
Sample No.	P 6822					
Case Id	115-33283.0001					
Sample Id	20150018 - 1					
Description						
C	Si	Mn	P	S	Cr	Mo
%	%	%	%	%	%	%
0,099	0,50	4,39	0,029	0,012	15,2	0,079
Ni	Al	Co	Cu	Nb	Ti	V
%	%	%	%	%	%	%
4,91	0,005	0,12	0,29	0,006	0,010	0,070
W	Pb	Sn	As	Se	B	N
%	%	%	%	%	%	%
0,012	<0,0005	0,006	0,006	0,005	0,0007	0,061
Fe						
%						
74						

Reporting example

Supplementary services

FORCE Technology offers a wide range of material analyses, such as for metals, plastics, composites and concrete, e.g.:

- X-ray analysis of abrasive dust from samples that cannot be analysed by OES
- Positive material identification (PMI) that may be performed at the customer's premises
- Wet chemical analysis at special requirements to analysis accuracy or detection limit
- Microscopy
- Mechanical testing
- Metallurgical and metallographic examination
- Damage investigation
- Trace element analysis
- Investigations by Scanning Electron Microscope.

Further information

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