



SPECTROMETER

Spectrometer is a non-destructive testing technique applied optically in order to obtain information about the chemical component of any material.

Mobile metal analyzers are specifically designed for location-independent use, and are used for analyzing and separating metals during production and before delivery. These are important and very useful in chemical plants, construction sites, scrap warehouses and recycling facilities.



Figure 1: Mobile spectrometer

Due to their high precision, fixed metal analyzers are used in the metal production industry, metal processing, R&D studies and quality control.



Figure 2: Fixed spectrometer



Analyses of other liquids such as industrial waste, water and plating baths are performed with ICP spectrometers. However, spectrometers are also used to measure pure metals and the lowest elements in metals.

Analyses of alloys used in precious metals, jewelry or dentistry are often performed with non-destructive XRF spectrometers. In addition, XRF spectrometers are suitable for processes such as coating analyses, automatic content and purity detection, or testing of furnace slag.

Kozmaksan Application Areas

Although our company supplies metal parts of different types and chemical structures from various suppliers, it also provides coating and surface heat treatment of these parts from various suppliers. In this regard, the easiest and fastest way to test that the materials obtained have the right chemical contents is the spectrometer test technique.

It is possible to perform spectrometer analyzes through KOSGEB-based laboratories for a certain fee.

HİZMET NO:	HİZMET	STANDART	AÇIKLAMALAR	(KOBİ'lere %50 indirim uygulanır)		ADANA	ANKARA OSTİM	ANKARA SİNCAN	BURSA	ESKİŞEHİR	GAZİANTEP	İSTANBUL ANADOLU	İSTANBUL İKİTELLİ	İZMİR KÜZEY	KONYA	SAMSUN
				İŞLETME(KOBİ)	DiĞER											
19	Metalik malzemeler - Vickers sertlik deneyi	ISO 6507-1		81	162	✓	✓	✓	✓			✓	✓	✓	✓	✓
20	Metalik Malzemelerde Kaynaklar Üzerinde Tahribatlı Deneyler-Kırılma Deneyi	EN 1320		55	110				✓		✓					
21	Metalik Malzemelerde Kaynaklarda Tahribatlı Deneyler-Sertlik Deneyi Ark Kaynaklı Birleştirmelerde Sertlik Deneyi	ISO 9015-1		81	162	✓	✓	✓	✓		✓					
22	Spektral Analiz	-		48	96	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	XRF (Metal Analizi, Değerli Metal Analizi, Maden Analizi, Toprak Analizi, ROHS Analizi, Positive Material Identification)	-	Portatif Değil	48	96	✓			✓	✓	✓	✓	✓		✓	
24	XRF Spektrometresiyle Kurşun (Pb), Cıva (Hg), Kadminyum (Cd), Krom (Cr), Brom (Br) Tayini	IEC 62321-3		48	96											
25	Titanyum ve Alaşımının XRF Spektrometresiyle Analizi	ASTM E539		48	96						✓					
26	Bakır ve Bakır Alaşımında Oksijen Tayini	ASTM E2575		48	96											
27	Titanyum Alaşımında İnert Gaz Füzyon Metodu ile Oksijen (O) ve Azot (N) tayini	ASTM E1409		48	96											
28	Titanyum Alaşımında İnert Gaz Füzyon Metodu ile Hidrojen (H) tayini	ASTM E1447		48	96											
29	Nikel Alaşımının XRF Spektrometresiyle Analizi	ASTM E2465		48	96						✓					
30	Karbon ve Düşük Alaşımli Çeliklerin Optik Emisyon Spektrometresiyle Analizi	ASTM E415		48	96	✓	✓	✓	✓		✓					
31	Dökme Demirlerin Optik Emisyon Spektrometresiyle Analizi	ASTM E1999		48	96	✓	✓	✓	✓		✓					
32	Östenitik Paslanmaz Çeliklerin Optik Emisyon Spektrometresiyle Analizi	ASTM E1086		48	96	✓	✓	✓	✓		✓					
33	Paslanmaz ve Alaşımli Çeliklerin XRF Spektrometresiyle Analizi	ASTM E572		48	96			✓			✓					
34	Düşük Alaşımli Çeliklerin XRF Spektrometresiyle Analizi	ASTM E1085		48	96			✓			✓					
35	Çelik, Demir, Nikel ve Kobalt Alaşımında; "Karbon, Kükürt, Azot ve Oksijen" Analizi	ASTM E1019		48	96	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Figure 3: KOSGEB laboratory test fee (TRY)



If a small number of sample test procedures are carried out, albeit only for a few times or periodically, it seems appropriate for these spectral analyzes to be carried out by KOSGEB laboratories. However, if this service is continuous, it would be more accurate for our company to purchase its own spectral test device.

Spectral Testing Equipment Pricing

As a result of the price researches, we have obtained the price range for various test devices as reference. These are;

1. S1 MiniLAB 150

With their compact design, small size, light weight and high elemental analysis precision MiniLab series devices are the most ambitious spectrometers in today's market in their respective category.

The S1 MiniLab 150 is a multi-matrix spectrometer capable of analyzing Iron, Copper and Aluminum materials. Thanks to its innovative optical design, the S1 MiniLab 150 has 4 high-resolution CCD (3,648 pixels) detector technology in its class.



Figure 4:S1 MiniLAB 150

The following information has been obtained from the supplier regarding the cost of the device.

The reading ranges and catalogs for the FE-AL of our MiniLAB 150 desktop model are attached.

The list price of this model is 25.000,00 EUR + VAT (PC+installation+training included).



2. E3 Esaport Portable OES Model

Portable optical emission metal analysis spectrometer for analysis of ferrous and non-ferrous alloys ESA portable spectrometer is a portable optical emission spectrometer developed for on-site analysis in metal production, metal processing and recovery industry. The device can be used for final tests on arc furnace platforms of steel mills, for definition and analysis of a wide range of metal types in scrap plants.



Figure 5: E3 Esaport Portable OES Model

The following information has been obtained from the supplier regarding the cost of the device.

1. E3 Esaport portable OES model 32.000,00 EUR + VAT
(including internal PC+installation+training + battery + trolley)



CONCLUSION

Since our company does not produce its own metal raw materials, having our own spectrometer test device has been considered as unnecessary expense. It will be more accurate and less costly to send metal raw materials and ready-to-process products procured externally to KOSGEB laboratories periodically (1, 3, 6 months) for control. This application will play an essential role in determining the accuracy of the material from the supplier and whether there is an increase or decrease in the quality of the material received from the same supplier. However, at this stage, any sample request from the supplier may mislead our company in reaching the correct results. Because it is very difficult to determine the reliability of the sample. For this reason, obtaining samples of the shipped parts by our company without the knowledge of the supplier will lead to healthier results.