



TURKISH ACCREDITATION AGENCY

COPY OF THE ACCREDITATION CERTIFICATE

As a Testing Laboratory,

MADEN TETKİK VE ARAMA GENEL MÜDÜRLÜĞÜ
Maden Analizleri Ve Teknolojisi Dairesi Laboratuvarları
Üniversiteler Mah. Dumlupınar Bulvarı No:139 ÇANKAYA
06800 ANKARA / TURKEY

is accredited in accordance with TS EN ISO/IEC 17025:2012 standard within the scope given in Annex following the assessment conducted by TURKAK.

Accreditation Number : AB-0394-T

Accreditation Date : 04 October 2010

Revision Date / Number : 14 February 2013 / 02

This certificate shall remain in force until 03 October 2014, subject to continuing compliance with the standard TS EN ISO/IEC 17025:2012, related regulations and requirements.



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Analysis Laboratories

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ANALYSIS LABORATORIES

- Sample Preparation
- Geochemical Analysis
- Chemical Analysis
- Coal Analysis
- Water Analysis



True analysis brings true comment, true comment results in exploration.

Analysis laboratories have combined experience with current technology since 1935 and have determined a general policy to achieve fast and accurate measurement results that responds to any kinds of demands of customers with its professional and dynamic staff. Our laboratories are the most inclusive laboratories of Turkey regarding to the number and variety of analyses.



Sample Preparation

In our clean and reliable sample preparation laboratory conditions, in compatible with the current technology, many samples are prepared,

- By applying cracking-separating-grinding processes,
- In appropriate particle size.



Geochemical Analyses

Tens of thousands of geochemical samples are analyzed within a short time, in our well-equipped laboratories which has proved its reliability and quality through accreditation process in 2012;

- By several digestion methods developed in addition to standard techniques,
- By ICP-OES, ICP-MS and AAS instruments that are used in current mining industries,
- Regarding to a large variety of element types and low detection limits,
- By carrying out R&D activities to develop efficiency of mineral exploration.



Chemical Analyses

True, fast and reliable analysis of wide range of samples, which has been proved its reliability and quality via accreditation process, in ppb and % levels are implemented by using national/international standards regarding to the requirements of customers.



Wet Analyses

Silicate and industrial raw materials, limestone, lime, gypsum, dolomite, magnesite and pyrite samples are analysed for many parameters by wet analysis methods (gravimetric, volumetric and spectrophotometric).



XRF Analyses

X-ray Fluorescence (XRF) method is used to determine the qualitative and quantitative analyses of elements in solid and liquid samples. Quantitative analyses are carried out through appropriate sample preparation techniques (pressed pellet, fusion, etc.) according to the structure of samples with WD XRF instruments.



ICP-OES/MS Analyses

The fast and reliable analyses of over sixty elements, especially rare earth elements and platinum group elements, are performed by use of different digestion techniques such as multi-acid, fusion and microwave closed system methods via high performance ICP-OES/MS instruments.



Precious Metal Analyses

Silver and gold analyses are carried out with Fire Assay + Gravimetric method accurately and reliably. Our Precious Metal Analyses Laboratory is the first laboratory in which gold, platinum and palladium analyses are implemented by Fire Assay+ICP MS technique.



Coal Analyses

Besides the analyses of samples that are taken from the surveys of the coal mine reserves of our country which will have more importance in the future;

- Imported lignite coal,
- Industrial coal (imported lignite, powder coal, petroleum coke, anthracite, metallurgical coke),
- Native coal (hard coal, lignite, peat, asphaltite)
- Briquets that are obtained as a result of R&D activities and several coal samples produced for fuel purposes,

are performed according to standard methods (ISO-TSE or ASTM). The quality and reliability of the analyses are certified via accreditation system in 2010.



Water Analyses

In addition to major anion and cation analyses; heavy metal and pollution analyses (ammonium, nitrate, nitrite, phosphate, etc.) are carried out in a wide range of ground water and underground water such as lakes, streams, artificial lakes, rivers, geothermal water which is one of the important renewable energy sources through modern instruments and international standards.



Water analysis laboratories which have experienced and well-trained staff, are accredited in 2011.