

# COAL TESTING SERVICES

[www.ttilabs.net](http://www.ttilabs.net)



## Tti Testing Laboratories

ISO/IEC 17025 Accredited Testing Laboratory  
ISO/IEC 17020 Accredited Inspection Body  
CPSC Accredited Testing Laboratory  
EPA Certified Testing Laboratory



## ABOUT Tti

**Tti** is a world class, globally recognized, ISO/IEC 17025 accredited testing facility and ISO/IEC 17020 accredited inspection body having the honor of being the first lab approved by US consumer product safety commission (CPSC) for consumer safety testing in Pakistan. Tti is also approved from Punjab Environmental Protection Agency as an EPA certified lab. Tti has a country-wide network of Labs and customer centers including a state of the art purpose built main testing facility in Lahore followed by liaison offices in Karachi, Faisalabad and Sialkot. We at Tti have been in service since 1995 serving a wide range of Industries including Environmental Protection, the government sector, Textiles, Leather, Chemical, Oil & Gas, Food, Paint/Coatings, Cosmetics & Pharmaceutical. We provide our clients a one stop comprehensive spectrum testing services which helps them add more value to their complex Supply chain, Regulatory Compliance and Brand Integrity.

## INTRODUCTION TO COAL TESTING

Coal is formed basically by geological progressions. It is a type of fossil fuel that originated from the remains of dead plants and trees many years ago. It has been classified as a nonrenewable energy source. Further, coal is composed of elements like carbon, sulphur, hydrogen, nitrogen and oxygen amongst others. Tti can accomplish all coal sampling and analysis requirements, from on-site sampling of plants as well as lab testing. We offer expertise for a broad range of sampling and analytical requirements and wide areas of services from the pre-treatment and analysis of exploration samples. We'll respond to your testing project request and will advocate an applicable, approachable and cost effective methodology to handle the analysis.

## IMPORTANCE OF COAL TESTING

Thermal power plants invest a lot of money and time in coal testing because they understand how important it is in the working of a boiler design. The performance of a boiler design severely depends on the fuel quality and analysis approach in this case. If lower grade coal is used instead of the prescribed quality for the design of the boiler, a substantial amount of impact may be seen in its working and efficiency. Coal quality plays a vital role in the proper functioning of a boiler, furnaces and other energy generators. Heat generated from burning coal in a thermal energy boiler is used for power generation, generating steam, and a variety of other applications.

The chemical composition of coal governs many characteristics in the designing of a boiler or furnace. Coal testing labs help with a complete analysis of the quality of coal so that you can estimate the performance of the boiler design.



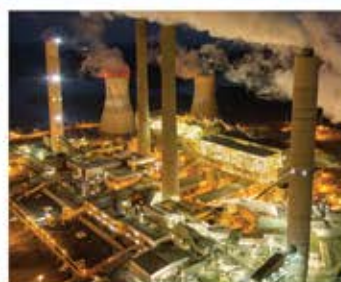
# APPLICATIONS OF COAL



**Electricity Generation**



**Production of Steel**



**Cement Industry**



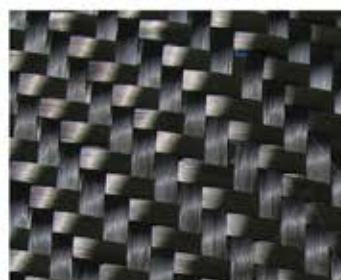
**Paper Industry**



**Aluminium Industry**



**Gasification & Liquefaction**



**Special products  
(Activated carbon, Carbon fiber)**



**Fertilisers**



**Water Purification**



**Raw Materials  
(Benzole, Coal tar, Creosote)**



**Cosmetics**



**Domestic Use**

# COAL TESTING CAPABILITIES

## Tests

## Standard methods

• Sample preparation	D-2013
• Gross calorific value (GCV) of Solid & liquid	ASTM D5865-13   ASTM D5868-13
• Proximate analysis (Moisture, Inherent moisture, Volatile matters, Fixed carbon, Ash) %	ASTM D3172-13
• Carbon sulfur analysis	ASTM D5016
• Hard grove grindability index (HGI)	D-409-93-A
• Free swelling index	D-720-91
• Ash fusion temperature determination	ASTM D1857
• BET surface area analysis	ASTM C1069 (Nitrogen Adsorption)   ASTM D1993 (Multipoint)
• CHNS/O Analysis	ASTM D3176-15
• True density of solid (Helium Pycnometer)	ASTM 4892-14
• Density of liquid using digital density meter	ASTM D3505-18
• FTIR analysis	ASTM D6348
• Sieve Analysis	ASTM D4749
• Flue Gas Analysis (upto 450° C)	ASTM UOP172-89
• Thermogravemetric analysis (TGA)	ASTM D5142-04
• Particle size distribution	ASTM WK45240
• Washing of coal by froth floatation cell	ASTM D5114
• Magnetic separator (Mag Mill) to separate minerals from coal	---
• Jig washer	---
• Deister concentrating table	---
• Heavey Media cyclone separation	---

**Minimum sample required (1.0 – 2.0 kg)**





# Our Services

Textile Testing  
 Apparel Testing  
 Leather Testing  
 Environmental Testing  
 Petroleum Testing  
**Coal Testing**  
 Paints, Coatings and Inks  
 Restricted Substances Testing  
 Inspections and Audits  
 Trainings



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 ISO/IEC 17020 Accredited Inspection Body  
 CPSC Accredited Testing Laboratory  
 EPA Certified Testing Laboratory

### Lahore

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### Karachi

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## Global Presence

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