

MILTECH ENERGY SERVICES, INC. – ANALYTICAL SERVICES DIVISION

MILTECH ANALYTICAL SERVICES IS CENTRALLY LOCATED...

Follow Route 70 to New Stanton.

From the east bound lane:

Take Exit 57 (New Stanton Exit).
Turn right onto Center Avenue.
Turn right onto Pennsylvania Avenue.
Follow Pennsylvania Avenue 1/4 mile to the stop sign.
Turn left onto SR3089.
Follow SR3089 3/4 mile to SR3014.
Follow SR3014 1/4 mile to Hunker Lumber Road.
Follow Hunker Lumber Road 1/4 mile to the Miltech Analytical Division.

From the west bound lane:

Take Exit 57A (Hunker Exit).
Follow SR3089 1 mile to SR3014.
Turn right onto SR3014.
Follow SR3014 1/4 mile to Hunker Lumber Road.
Follow Hunker Lumber Road 1/4 mile to the Miltech Analytical Division.



Mailing Address: 11A Hunker Lumber Rd,
Hunker, PA 15639
Telephone: 724-925-1460
Fax: 724-925-1461
Contact: William H. (Bill) Smith
e-mail: lab@miltechenergy.com

Fuel Testing Services Offered:

- Bias Testing
- Fuel Sampling and Analyses
- Coal Preparation Plant Efficiency Testing
- Barge Drafting



ANALYTICAL DIVISION

ASTM/EPA TESTING PROCEDURES

COAL TESTING BY MILTECH

Coal Washability Studies
Bias Testing of Mechanical Sampling Systems
Inspection of Mechanical Sampling Systems
Mechanical Auger Sampling
Evaluation of On-Line Coal Analyses
Collection of a Gross Sample of Coal
Collection of Channel Samples of Coal
Collection of Coal Samples from Core
Preparing Coal Samples for Analyses
Sieve Analyses of Coal
Apparent True Specific Gravity
Cubic Foot Weight of Coal
Grindability of Coal-Hardgrove Method
Free Swelling Index of Coal
Equilibrium Moisture of Coal
Fusibility of Coal and Coke Ash
Chlorine in Coal
Forms of Sulfur in Coal
Analyses of Coal and Coke Ash
Total Moisture in Coal
Single Stage Moisture in Coal
Ash Content of Coal
Volatile Matter of Coal
Carbon & Hydrogen Content of Coal
Nitrogen Content of Coal
Trace Elements in Coal
Sulfur Content in Coal
Degree of Oxidation
Gross Calorific Value of Coal & Coke

TEST STANDARD

ASTM D4371
ASTM D6518
ASTM D4702
ASTM D4916
ASTM D6543
ASTM D2234
ASTM D4596
ASTM D5192
ASTM D2013
ASTM D4749
ASTM D167
ASTM D291
ASTM D409
ASTM D720
ASTM D1412
ASTM D1857
ASTM D2361
ASTM D2492
ASTM D2795
ASTM D3302
ASTM D2961
ASTM D3174
ASTM D3175
ASTM D3178
ASTM D3179
ASTM D3683
ASTM D4239
ASTM D5263
ASTM D5865

WATER SAMPLING AND ANALYSES BY MILTECH

Standard Practice for Low-Flow Purging and Sampling for
Wells and Devices for Ground Water Quality Investigations
Water Sampling and Analyses

TEST METHOD

ASTM D6771-02
EPA SW-846
ASTM Books 11-01 thru
11-05 Std. Methods



ANALYTICAL DIVISION

BIAS TESTING

Bias testing of a mechanical sampling system is the only way to determine if a sampling system is collecting a representative sample. ASTM advises that mechanical sampling systems should be tested initially and on a regular on-going basis for bias. Bias testing is statistically significant systematic error. Critical inspections are often used prior to testing to correct any problems that may cause bias.

Bias testing consists of a series of pairs of samples of the same coal. Usually a series of stopped belt reference samples and final save samples are collected and analyzed. The difference between analytical results is determined for each pair. The series of differences is subjected to statistical analysis to determine bias.

Miltech Energy Services, Inc. provides a complete line of bias testing services, including critical inspections, collection, analysis and reporting of bias tests on all types of mechanical sampling systems.

TESTING STANDARDS USED BY MILTECH

| | | |
|---|------|-------|
| Bias Testing of Mechanical Sampling Systems | ASTM | D6518 |
| Inspection of Mechanical Sampling Systems | ASTM | D4702 |
| Mechanical Auger Sampling | ASTM | D4916 |
| Evaluation of On-Line Coal Analyzers | ASTM | D6543 |



ANALYTICAL DIVISION

FUEL SAMPLING AND ANALYSIS

The Miltech Energy Services, Inc. Analytical Division provides a complete line of laboratory analyses to meet the needs of energy producers and consumers. All analyses are run in accordance with recognized industry standards such as ASTM, ISO or EPA standards. Our laboratory utilizes state of the art equipment and experienced technicians to provide fast and accurate laboratory data on coal, metallurgical coke, petroleum coke, refuse derived fuels, oils and solvents.

Coal testing and analysis usually begins when the coal is still in the ground. Exploration coal core samples are drilled and analyzed for recovery and coal quality well before the mining process. During mining coal channel samples are routinely collected and analyzed for recovery and coal quality to determine the most efficient coal preparation system necessary. During preparation coal samples are collected and analyzed to assure the desired product quality is being achieved. Third party coal sampling and analysis are done routinely at loading and discharge of rail cars, trucks, barges and stockpiles. Finally, coal is routinely sampled and analyzed at the power plant to determine plant efficiency and EPA compliance.

Miltech Energy Services, Inc. Analytical Division provides a complete line of sampling and analysis services as well as inspection, check weighing and barge drafting services.

TESTING STANDARDS USED BY MILTECH

| | <u>TEST</u> | <u>DESIGNATION</u> |
|---|-------------|--------------------|
| Collection of a Gross Sample of Coal | ASTM | D2234 |
| Collection of Channel Samples of Coal | ASTM | D4596 |
| Collection of Coal Samples from Core | ASTM | D5192 |
| Preparing Coal Samples for Analyses | ASTM | D2013 |
| Sieve Analyses of Coal | ASTM | D4749 |
| Coal Washability Studies | ASTM | D4371 |
| Total Moisture in Coal | ASTM | D3302 |
| Single Stage Moisture in Coal | ASTM | D2961 |
| Equilibrium Moisture in Coal | ASTM | D1412 |
| Ash Content of Coal | ASTM | D3174 |
| Sulfur Content of Coal | ASTM | D4239 |
| Forms of Sulfur in Coal | ASTM | D2492 |
| Volatile Matter of Coal | ASTM | D3175 |
| Gross Calorific Value of Coal and Coke | ASTM | D5865 |
| Grindability of Coal | ASTM | D409 |
| Chlorine in Coal | ASTM | D2361 |
| Fusibility of Coal and Coke Ash | ASTM | D1857 |
| Analyses of Trace Elements in Coal and Coke Ash | ASTM | D3683 |
| Nitrogen Content of Coal | ASTM | D3179 |
| Carbon & Hydrogen Content of Coal | ASTM | D3178 |
| Cubic Foot Weight of Coal | ASTM | D291 |
| Degree of Oxidation | ASTM | D5263 |
| Free Swelling Index of Coal | ASTM | D720 |
| Apparent True Specific Gravity | ASTM | D167 |



ANALYTICAL DIVISION

COAL PREPARATION PLANT EFFICIENCY TESTING

The goal of every coal preparation plant operator is to recover every pound of clean coal possible at the desired quality. This is a product of both the cleaning process and the raw feed. Preparation plant testing can be used to determine the optimum parameters within the plant process that obtain the desired product (quality of the clean and at what rate of recovery). Knowing the maximum efficiency of the plant and the process, the operator can balance the efficiency of the mining process (raw feed) with that of the plant to achieve the desired results in the final product.

Usually representative samples of raw feed, product and refuse from all the different circuits within the plant are collected. In the laboratory the samples are subjected to coal washability studies and coal quality analyses at various specific gravity. Coal washability tables are prepared that demonstrate the recovery and quality at the different specific gravities under laboratory conditions. From the laboratory washability tables it can be determined how well the coal preparation process is being managed.

Miltech Energy Services, Inc. provides a complete line of coal preparation plant efficiency testing including collection, sieving, washability studies and coal analyses.

TESTING STANDARDS USED BY MILTECH

| | |
|---------------------------------------|--------------------------------|
| Collection of a Gross Sample of Coal | ASTM D2234 |
| Collection of Channel Samples of Coal | ASTM D4596 |
| Collection of Coal Samples from Core | ASTM D5192 |
| Sieve Analyses of Coal | ASTM D4749 |
| Coal Washability Studies | ASTM D4371 |
| Complete Coal Analyses | See Fuel Sampling and Analysis |



ANALYTICAL DIVISION

BARGE DRAFTING SURVEYS

Miltech Energy Services, Inc. provides quality barge draft surveying of river barges. Miltech's field technicians measure the barge freeboard at ten points prior to loading the barge. The same ten freeboard readings are taken after the barge is loaded. From current barge charts (provided by the barge lines) the light tonnage, loaded tonnage and net tonnage are computer calculated.