

30782

Facility Name: Allegany High School CCB Tonnage Report – 2008

**B. Applicability.** If you or your company meet the definition of a generator of CCBs as defined above, you must provide the information as required below. For the purposes of this report, "you" shall hereinafter refer to the generator defined above. Please note that COMAR 26.04.10.08 requires generators of CCBs to submit an annual report to the Department concerning the disposition of the CCBs that they generated the previous year.

**III. Required Information.** The following information must be provided to the Department by March 1, 2009:

A. Contact information:

Facility Name: Allegany High School

Name of Permit Holder: \_\_\_\_\_

Facility Address: 616 Sedgwick Street  
Street

Facility Address: Cumberland MD 21502  
City State Zip

County: Allegany

Contact Information (Person filing report or Environmental Manager)

Facility Telephone No.: 301-722-4968 Facility Fax No.: 301-722-4985

Contact Name: Larry Lancaster

Contact Title: Supervisor of Operations

Contact Address: 211 Market Street  
Street

Contact Address: Cumberland MD 21502  
City State Zip

Contact Email: larry.lancaster@acps.k12.md.us

Contact Telephone No.: 301-722-4968 Contact Fax No.: 301-722-4985

*For questions on how to complete this form, please call Mr. Tariq Masood, Head of the Office of Reports and Data Management, Solid Waste Program at 410-537-3326.*

RECEIVED

FEB 25 2009

B. A description of the process that generates the coal combustion byproducts, including the type of coal or other raw material that generates the coal combustion byproducts. If the space provided is insufficient, please attach additional pages:

Three (3) stoker coal boilers, firing bituminous coal, are used to provide hot water and/or steam for building heat.

---



---



---



---

C. In the first Annual Report you submit, the annual volume of coal combustion byproducts generated during the last 5 calendar years, including an identification of the different types of coal combustion byproducts generated and the volume of each type generated. (Please note that in subsequent years you need only provide the information in this paragraph for the last calendar year.) If the space provided is insufficient, please attach additional pages in a similar format:

Table I: Volume of CCBs Generated for Previous 5 Years:

Reporting Year	Volume of CCB Type:	Volume of CCB Type:	Volume of CCB Type:
	Bottom Ash (ft <sup>3</sup> )	N/A	N/A
2008	4,354.85		
2007	4,349.08		
2006	3,138.77		
2005	4,466.14		
2004	4,978.41		

Additional notes:

The volumes of CCBs generated from this facility were estimated using the quantities of coal used by the facility and the ash values from the corresponding testing reports.

---



---



---



---



---



---

PLANNED

FEB 16 2009

RECEIVED

2009

D. Descriptions of any modeling or risk assessments, or both, conducted relating to the coal combustion byproducts or their use, that were performed by you or your company during the reporting year. Please attach this information to the report.

E. Copies of all laboratory reports of all chemical characterizations of the coal combustion byproducts. Please attach this information to the report.

F. In this first Annual Report you submit, a description of how you disposed of or used your coal combustion byproducts in the last 5 calendar years (Please note that in subsequent years you need only provide the information in this paragraph for the last calendar year), identifying:

(a) The types and volume of coal combustion byproducts disposed of or used (if different than described in Paragraph C above), the location of disposal, mine reclamation and use sites, and the type and volume of coal combustion byproducts disposed of or used at each site:

The coal combustion byproducts (CCBs) generated by this facility are listed in Table I.

The CCBs generated by this facility during the past five years were transported to the Phillips Coal Company blending yard and to the Pine Mountain Coal Company, both located near Lonaconing, MD.

The following is the estimated volume of CCBs transported to each of these facilities for the past five years.

	Phillips Coal Company	Pine Mountain Coal Company
2008	3,959.69 ft <sup>3</sup>	395.16 ft <sup>3</sup>
2007	3,953.92 ft <sup>3</sup>	395.16 ft <sup>3</sup>
2006	2,743.61 ft <sup>3</sup>	395.16 ft <sup>3</sup>
2005	4,070.98 ft <sup>3</sup>	395.16 ft <sup>3</sup>
2004	4,583.25 ft <sup>3</sup>	395.16 ft <sup>3</sup>

and (b) The different uses by type and volume of coal combustion byproducts:

---



---



---



---



---

If the space provided is insufficient, please attach additional pages in a similar format. . (Please note that in subsequent years you need only provide the information in Section F for the last calendar year).

CLASSIFIED

SECRET

G. A description of how you intend to dispose of or use coal combustion byproducts in the next 5 years, identifying:

(a) The types and volume of coal combustion byproducts intended to be disposed of or used, the location of intended disposal, mine reclamation and use sites, and the type and volume of coal combustion byproducts intended to be disposed of or used at each site:

Based on the past five calendar years of data, it is estimated that this facility will continue to generate approximately 4,300 ft<sup>3</sup> of coal combustion products (CCBs) each year for the next five years. The CCB's generated at the facility are classified as bottom ash.

All CCB's from this facility will be transported to a CCB mine reclamation site in Allegany or Garrett County Maryland, or to the Waste Management Mountain View landfill.


and (b) The different intended uses by type and volume of coal combustion byproducts.

Bottom Ash – Approximately 0 ft<sup>3</sup> to 4,300 ft<sup>3</sup> per year - Mine Reclamation

Bottom Ash – Approximately 0 ft<sup>3</sup> to 4,300 ft<sup>3</sup> per year – Landfill Facility

If the space provided is insufficient, please attach additional pages in a similar format.

**IV. Signature and Certification.** An authorized official of the generator must sign the annual report, and certify as to the accuracy and completeness of the information contained in the annual report:

This is to certify that, to the best of my knowledge, the information contained in this report and any attached documents are true, accurate, and complete.		
 Signature	<u>Larry Lancaster, Supervisor of Operations</u>	<u>2/23/09</u> Date
	301-722-4968 Name, Title, & Telephone No. (Print or Type)	
	<u>larry.lancaster@acps.k12.md.us</u> Your Email Address	

FY 2008-09

**PINE MOUNTAIN COAL CO. INC.**

15615 Rayner Hill Drive SW  
Frostburg, MD 21532  
Phone: 301-463-6518  
Fax: 301-463-2572

To: Board of Education of Allegany County

From: Pine Mountain Coal Company Inc.

Date: July 28, 2008

10 10 10

10 10 10

10 10 10

10 10 10

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

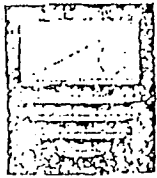
COAL ANALYSIS REPORT

3333333

CLIENT: PINE MT. COAL  
DESCRIPTION: AHS STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 5-20-08  
ANALYSIS DATE: 5-22-08 CODE: OS LAB NUMBER: L 728

	AS RECEIVED	DRY COAL	
MOISTURE:	1.88		
ASH:	8.65	8.82	
VOLATILE MATTER:	19.59	19.97	
FIXED CARBON:	69.88	71.21	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	0.69	0.70	
BTU:	13932	14199	MAF: 15572
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	0.50		
OTHER:	SCREEN - 2 X 1/4 = 96.9%	1/4 X 0 = 3.1%	
OTHER:			

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 1  
2005 N Center Ave  
Somerset PA 15486

814/445-1371  
814/445-0010  
FAX: 814/445-6719

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

Analyzed on:

Description: Pine Mt. AHS Stoker #728

LAB NO. 98-C058945

Ash Fusion (Reducing Atmosphere)				
	Initial D.	Softening T.	Hemi T.	Fluid T.
Temp ° F	2800 +	2800 +	2800 +	2800 +

RECEIVED

CO 23 2001

LABORATORY OF ENERGY CENTER, INC.  
SOMERSET, PA 15486

Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #1 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 5-20-08  
ANALYSIS DATE: 5-22-08 CODE: OS LAB NUMBER: L 729

	AS RECEIVED	DRY COAL	
MOISTURE:	1.43		
ASH:	12.98	13.16	
VOLATILE MATTER:	19.77	20.06	
FIXED CARBON:	65.82	66.77	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.45	1.48	
BTU:	13237	13429	MAF: 15465

ASTM FREE SWELLING INDEX #: 9

LBS SULFUR/MILLION BTU: 1.10

OTHER: SCREEN - 1 1/2 X 3/4 = 48.5% 3/4 X 1/2 = 32.5%

OTHER: 1/2 X 0 = 19.0%

RECEIVED  
MAY 23 2008  
ANTHONY J. ...  
LAB

*James P. ...*  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

Analyzed on:

Description: Pine Mt. Stoker #1 #729

LAB NO. 98-C058946

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2500	2550	2580	2630

P.2

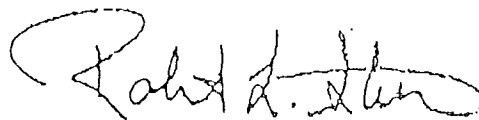
2005 N Center Ave  
Somerset PA 15501

814/443-1671  
814/445-0563  
FAX: 814/445-0729

RECEIVED

FEB 28 2000

U.S. DEPARTMENT OF ENERGY  
OFFICE OF COAL SERVICES



Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #2 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 5-20-03  
ANALYSIS DATE: 5-22-03 CODE: DS LAB NUMBER: L 730

	AS RECEIVED	DRY COAL
MOISTURE:	1.60	
ASH:	13.27	13.48
VOLATILE MATTER:	20.00	20.33
FIXED CARBON:	65.13	66.19
	<u>100.00</u>	<u>100.00</u>
SULFUR:	1.40	1.43
BTU:	13232	13447

ASTM FREE SWELLING INDEX #: 9

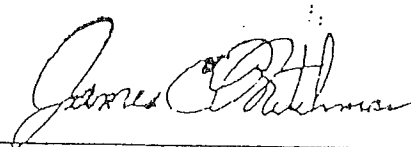
LBS SULFUR/MILLION BTU: 1.06

OTHER: SCREEN - 2 X 1/2 = 91.0% 1/2 X 0 = 9.0%

OTHER:

RECEIVED  
FEB 23 2003  
POTENTIAL DEVELOPMENT DIV  
CIVILIAN

MAF: 15542



LAB TECHNICIAN

# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

P.3

2005 N Center Ave  
Somerset PA 15501

814/443-1071

814/443-1072

FAX: 814/443-1073

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

Analyzed on:

Description: Pine Mt. Stoker #2 #730

LAB NO. 98-C058947

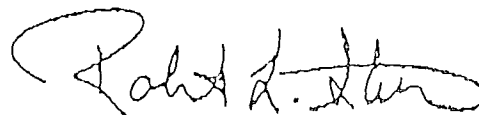
Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2580	2630	2680	2740

RECEIVED

FEB 25 2001

SOMERSET COUNTY COLLEGE  
LIBRARY



Robert L. Stull  
Director of Coal Services

# MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305



No. 491

BITUMINOUS  
COAL DUST

## SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: BITUMINOUS COAL DUST

DESCRIPTION: Includes coals between lignites and anthracites with "fixed carbon" <36%, "volatile matter" >14% "calorific value" >10,500 BTU/lb (see ASTM D388 & D3172). Particulate <75 µm (thru No. 200 sieve), dispersible in air, is of primary interest. Coal consists of conjugated poly(aromatic/unsaturated/saturated) ring structures with heterocycles containing O, N, and S. C<sub>102</sub>H<sub>78</sub>O<sub>10</sub>N<sub>2</sub> has been suggested as a "coal molecule".

SOURCE: Mining, handling, and pulverizing processes with coal.

## SECTION II. INGREDIENTS AND HAZARDS

### HAZARD DATA

"Proximate Analysis" of some air-dried bituminous coals:

Source	"Moisture"	"Volatiles"	"Fixed Carbon"	"Ash"
West Virginia	1.8	20.4	72.4	5.4
Pennsylvania	1.2	34.5	58.4	5.9
Illinois	8.4	35.0	48.2	8.4
Wyoming	11.0	38.6	40.2	10.2

ACGIH TLV  
8-hr TWA 2 mg/m<sup>3</sup> or  
OSHA PEL 2.4 mg/m<sup>3</sup>  
Respirable dust with  
<5% quartz\*

Bituminous coals also contain trace metals, sulfur (0.4-3.5) and nitrogen (0.9-1.5%), depending on source and type.

\*Respirable dust is particulate <5 µm in size. Use quartz formula (MSDS #71) if quartz content is >5%.

## SECTION III. PHYSICAL DATA

Boiling point ----- N/A Specific gravity (H<sub>2</sub>O=1) - 1.3-1.6  
Vapor pressure at 25 C ----- Negligible Volatiles at 25 C ----- Negligible  
Water solubility ----- Negligible

Appearance & Odor: Black powder; little or no odor.

## SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp. **	Flammability Limits In Air	LOWER	UPPER
	{cloud} >1114 F {flavor} >392 F	cloud(10 µm Av.), 50mJ spark	>0.05*	1 oz/fr <sup>3</sup>

Extinguishing Media: Nitrogen, carbon dioxide, steam, water, ammonium biphosphate powder  
A water spray can be used to cautiously wet down coal dust to help prevent ignition (avoid raising dust). It is a fire and explosion hazard when exposed to heat or flame. Firefighters should have self-contained breathing equipment and protective clothing.

\*Ca 1 oz/fr<sup>3</sup> gives max. flame energy; smallest 20% of particulate determines ignition characteristics; 10-50mJ spark needed at 0-5% moisture, respectively, to initiate combustion in 200 mesh dust. \*\*A pile of 2-7 µm Pittsburgh coal dust heated at 169 C

## SECTION V. REACTIVITY DATA

Coal dust is fairly stable at 25 C, but it can react with oxygen from the air, very slowly at room temperature and faster when heated. In piles with good heat retention a slow heat build-up and spontaneous ignition can occur. (Humid air can accelerate this ignition of dry coal.) On heating coal releases combustibles by devolatilization and pyrolysis. When these burn, they can heat the solid carbon; hot carbon reacts with O<sub>2</sub>, CO<sub>2</sub>, and water vapor to produce combustible gases.  
Oxidation products of coal can include oxides of carbon, nitrogen and sulfur, partially oxidized hydrocarbons, soot and fly ash.

This material is incompatible with strong oxidizing agents, especially when heated.

RECEIVED

FEB 26 1982

SECTION 2 CERTIFICATION  
LEVEL 1

No. 491

SECTION VI. HEALTH HAZARD INFORMATION

TLV 2 mg/m<sup>3</sup> (See Sect II)

Coal workers pneumoconiosis (CWP) can occur after years of excessive exposure to respirable coal dust in the mining, handling and processing of coal. Respirable quartz particulate can be simultaneously present with the coal, especially in the mine. In general, coal dust is deposited in the lungs like quartz but requires over 10X as much for adverse effects. It does not kill macrophages; reticulin fibers form, but little collagen is generated. (That which forms is often attributed to quartz.) The severity of CWP is directly related to the amount of coal dust in the lungs. In many CWP does not progress beyond the simple stage, which is detectable by x-ray as round and irregular "coal macules" of 1-5 mm diameter, but which does not change lung function or shorten life. CWP is a precursor of progressive massive fibrosis (PMF) resulting in large masses of fibrous tissue development (mechanisms unclear). PMF impairs pulmonary function and shortens life. There is no evidence of association of CWP and bronchogenic cancer. Chronic bronchitis and emphysema are reported to result from excessive coal dust inhalation. Persons having rheumatoid arthritis in conjunction with simple CWP may have rapidly developing lung damage. (Caplan's Syndrome).

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Remove ignition sources. Clean-up personnel may need dust respirators and eye protection. Coal dust should be cleaned up in manner that avoids dispersing particulate in air or into the environment.

Collect dust in a covered metal container for use as fuel or for disposal.

DISPOSAL: Use as fuel in a pulverized coal-burning furnace, or burn as slurry in water

For other incineration, possible dust explosions or "puffs" and high temperature need to be considered. Scrap coal dust may be wet down thoroughly with water in a container and buried in landfill. Follow Federal, State, and Local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide explosion-proof general and local exhaust ventilation to meet TLV requirements. Approved filtration of exhausted air may be required to prevent excessive environmental dispersion of dust.

Where airborne dust is excessive in the workplace, dust respirators and eye protection are needed.

In working with coal dust, use good personal hygiene. Wear regularly cleaned work clothing. Showering and changing into street clothing after work may be desirable.

Follow good housekeeping procedures to control coal dust build up. Collect dust from settling areas and surfaces in a manner to avoid generating airborne dust. Design dust suppression measures into processes. Meet explosion-proof code requirements for electrical services where coal dust may be present.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Keep sources of heat and ignition, flammable materials, and strong oxidizing agents away from areas where coal dust may collect. Prevent static sparks. Inerting may be desirable, such as powdered CaCO<sub>3</sub> or rock dust laid down over coal dust on mine floor or a nitrogen enriched atmosphere in a coal pulverizing machine.

Reference: L.D. Smoot, et. al., "Pulverized Coal Power Plant Fires and Explosions" Parts I, II and V, Brigham Young University, Mechanical Engineering Dept., Prepared for Utah Power and Light Co., Salt Lake City, Utah 1979-1981.

OSHA Classification: FLAMMABLE SOLID  
DATA SOURCE(S) CODE: 2-4, 14, 33, 41, 47

Warranties as to the suitability of information herein for purchaser's purposes are not necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: MIS  
CRD

*J.M. Nielsen*

Industrial Hygiene  
and Safety

*JW 5-11-82*

MEDICAL REVIEW: 29 May 1982

FY 2007-08

**PINE MOUNTAIN COAL CO. INC.**

15615 Rayner Hill Drive SW  
Frostburg, MD 21532  
Phone: 301-463-6518  
Fax: 301-463-2572

To: Board of Education of Allegany County

From: Pine Mountain Coal Company Inc.

Date: August 15, 2007

RECEIVED

FEB 26 2008


EDUCATION DEPARTMENT  
ALLEGANY COUNTY

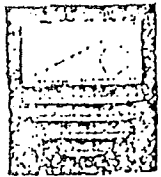
SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: AHS STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 06-19-07  
ANALYSIS DATE: 06-21-07 CODE: DS LAB NUMBER: L 728

	AS RECEIVED	DRY COAL	
MOISTURE:	1.88		
ASH:	8.65	8.82	
VOLATILE MATTER:	19.59	19.97	
FIXED CARBON:	69.88	71.21	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	0.69	0.70	
BTU:	13932	14199	MAF: 15572
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	0.50		
OTHER: SCREEN. - 2 X 1/4 = 96.9%		1/4 X 0 = 3.1%	
OTHER:			

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 1

2005 N Center Ave  
Somerset PA 15501

814/443-1371

814/445-6666

FAX: 814/445-6789

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 06-19-07

Analyzed on: 06-21-07

Description: Pine Mt. AHS Stoker #728

LAB NO. 98-C058945

Ash Fusion (Reducing Atmosphere)		Hemi T.	Fluid T.
Initial D.	Softening T.	2800 +	2800 +
Temp ° F	2800 +	2800 +	2800 +

Robert L. Stull  
Director of Coal Services

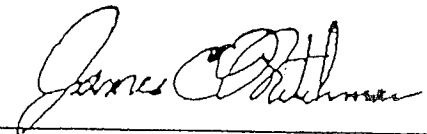


SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT.COAL  
DESCRIPTION: #1 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 06-19-07  
ANALYSIS DATE: 06-21-07 CODE: OS LAB NUMBER: L 729

	AS RECEIVED	DRY COAL	
MOISTURE:	1.43		
ASH:	12.98	13.16	
VOLATILE MATTER:	19.77	20.06	
FIXED CARBON:	65.82	66.77	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.45	1.48	
BTU:	13237	13429	MAF: 15465
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.10		
OTHER: SCREEN - 1 1/2 X 3/4 - 48.5%		3/4 X 1/2 - 32.5%	
OTHER: 1/2 X 0 - 19.0%			



LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 06-19-07

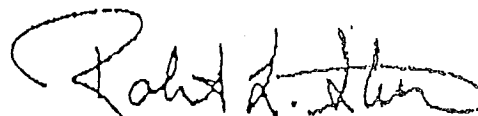
Analyzed on: 06-21-07

Description: Pine Mt. Stoker #1 #729

LAB NO. 98-C058946

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2500	2550	2580	2630



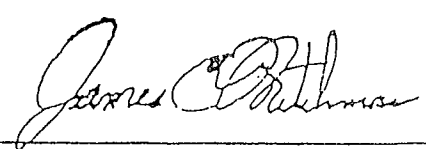
Robert L. Stull  
Director of Coal Services

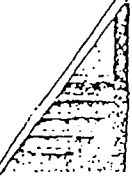
SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814) 634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #2 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 06-19-07  
ANALYSIS DATE: 06-21-07 CODE: DS LAB NUMBER: L 730

	AS RECEIVED	DRY COAL	
MOISTURE:	1.60		
ASH:	13.27	13.48	
VOLATILE MATTER:	20.00	20.33	
FIXED CARBON:	65.13	66.19	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.40	1.43	
BTU:	13232	13447	MAF: 15542
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.06		
OTHER: SCREEN - 2 X 1/2 = 91.0%		1/2 X 0 = 9.0%	
OTHER:			

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P.3

2005 N Center Ave  
Somerset PA 15501

814/443-1671  
610/447-0000  
FAX: 814/443-1671

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 06-19-07

Analyzed on: 06-21-07

Description: Pine Mt. Stoker #2 #730

LAB NO. 98-C058947

Ash Fusion (Reducing Atmosphere)

	Initial D.	Softening T.	Hemi T.	Fluid T.
Temp ° F	2580	2630	2680	2740

Robert L. Stull  
Director of Coal Services

# MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305



No. 491

BITUMINOUS  
COAL DUST

## SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: BITUMINOUS COAL DUST

DESCRIPTION: Includes coals between lignites and anthracites with "fixed carbon" <36%, "volatile matter" >14% "calorific value" >10,500 BTU/lb (see ASTM D388 & D3172). Particulate <75 μm (thru No. 200 sieve), dispersable in air, is of primary interest. Coal consists of conjugated poly(aromatic/unsaturated/saturated) ring structures with heterocycles containing O, N, and S. C<sub>102</sub>H<sub>78</sub>O<sub>10</sub>N<sub>2</sub> has been suggested as a "coal molecule".

SOURCE: Mining, handling, and pulverizing processes with coal.

## SECTION II. INGREDIENTS AND HAZARDS

### HAZARD DATA

"Proximate Analysis" of some air-dried bituminous coals:

Source	"Moisture"	"Volatiles"	"Fixed Carbon"	"Ash"
West Virginia	1.8	20.4	72.4	5.4
Pennsylvania	1.2	34.5	58.4	5.9
Illinois	8.4	35.0	48.2	8.4
Wyoming	11.0	38.6	40.2	10.2

ACGIH TLV<sub>3</sub>  
8-hr TWA 2 mg/m<sup>3</sup> or  
OSHA PEL 2.4 mg/m<sup>3</sup>  
Respirable dust with  
<5% quartz\*

Bituminous coals also contain trace metals, sulfur (0.4-3.5) and nitrogen (0.9-1.5%), depending on source and type.

\*Respirable dust is particulate <5 μm in size. Use quartz formula (MSDS #71) if quartz content is >5%.

## SECTION III. PHYSICAL DATA

Boiling point ----- N/A Specific gravity (H<sub>2</sub>O=1) - 1.3-1.6  
Vapor pressure at 25 C ----- Negligible Volatiles at 25 C ----- Negligible  
Water solubility ----- Negligible

Appearance & Odor: Black powder; little or no odor.

## SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.**	Flammability Limits In Air	LOWER	UPPER
	{cloud} >1114 F {flavor} >392 F	cloud (10 μm Av.), 50mJ spark	>0.05*	

Extinguishing Media: Nitrogen, carbon dioxide, steam, water, ammonium biphosphate powder  
A water spray can be used to cautiously wet down coal dust to help prevent ignition (avoid raising dust). It is a fire and explosion hazard when exposed to heat or flame. Firefighters should have self-contained breathing equipment and protective clothing.

\*Ca 1 oz/ft<sup>3</sup> gives max. flame energy; smallest 20% of particulate determines ignition characteristics; 10-50mJ spark needed at 0-5% moisture, respectively, to initiate combustion in 200 mesh dust. \*\*A pile of 2-7 μm Pittsburgh coal dust heated at 169 C in air can reach 1114 F in 100 hr.

## SECTION V. REACTIVITY DATA

Coal dust is fairly stable at 25 C, but it can react with oxygen from the air, very slowly at room temperature and faster when heated. In piles with good heat retention a slow heat build-up and spontaneous ignition can occur. (Humid air can accelerate this ignition of dry coal.) On heating coal releases combustibles by devolatilization and pyrolysis. When these burn, they can heat the solid carbon; hot carbon reacts with O<sub>2</sub>, CO<sub>2</sub>, and water vapor to produce combustible gases.

Oxidation products of coal can include oxides of carbon, nitrogen and sulfur, partially oxidized hydrocarbons, soot and fly ash.

This material is incompatible with strong oxidizing agents, especially when heated.

SECTION VI. HEALTH HAZARD INFORMATION

TLV 2 mg/m<sup>3</sup> (See Sect II)

Coal workers pneumoconiosis (CWP) can occur after years of excessive exposure to respirable coal dust in the mining, handling and processing of coal. Respirable quartz particulate can be simultaneously present with the coal, especially in the mine. In general, coal dust is deposited in the lungs like quartz but requires over 10X as much for adverse effects. It does not kill macrophages; reticulin fibers form, but little collagen is generated. (That which forms is often attributed to quartz.) The severity of CWP is directly related to the amount of coal dust in the lungs. In many CWP does not progress beyond the simple stage, which is detectable by x-ray as round and irregular "coal macules" of 1-5 mm diameter, but which does not change lung function or shorten life. CWP is a precursor of progressive massive fibrosis (PMF) resulting in large masses of fibrous tissue development (mechanisms unclear). PMF impairs pulmonary function and shortens life. There is no evidence of association of CWP and bronchogenic cancer. Chronic bronchitis and emphysema are reported to result from excessive coal dust inhalation. Persons having rheumatoid arthritis in conjunction with simple CWP may have rapidly developing lung damage. (Caplan's Syndrome).

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Remove ignition sources. Clean-up personnel may need dust respirators and eye protection. Coal dust should be cleaned up in manner that avoids dispersing particulate in air or into the environment.

Collect dust in a covered metal container for use as fuel or for disposal.

**DISPOSAL:** Use as fuel in a pulverized coal-burning furnace, or burn as slurry in water. For other incineration, possible dust explosions or "puffs" and high temperature need to be considered. Scrap coal dust may be wet down thoroughly with water in a container and buried in landfill. Follow Federal, State, and Local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide explosion-proof general and local exhaust ventilation to meet TLV requirements. Approved filtration of exhausted air may be required to prevent excessive environmental dispersion of dust.

Where airborne dust is excessive in the workplace, dust respirators and eye protection are needed.

In working with coal dust, use good personal hygiene. Wear regularly cleaned work clothing. Showering and changing into street clothing after work may be desirable.

Follow good housekeeping procedures to control coal dust build up. Collect dust from settling areas and surfaces in a manner to avoid generating airborne dust. Design dust suppression measures into processes. Meet explosion-proof code requirements for electrical services where coal dust may be present.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Keep sources of heat and ignition, flammable materials, and strong oxidizing agents away from areas where coal dust may collect. Prevent static sparks. Inerting may be desirable, such as powdered CaCO<sub>3</sub> or rock dust laid down over coal dust on mine floor or a nitrogen enriched atmosphere in a coal pulverizing machine.

Reference: L.D. Smoot, et. al., "Pulverized Coal Power Plant Fires and Explosions" Parts I, II and V, Brigham Young University, Mechanical Engineering Dept., Prepared for Utah Power and Light Co., Salt Lake City, Utah 1979-1981.

OSHA Classification: FLAMMABLE SOLID

DATA SOURCE(S) CODE: 2-1, 14, 38, 41, 47

Statements as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: MIS  
CRD

*J.M. Nelson*

Industrial Hygiene  
and Safety

*JW 5-11-82*

MEDICAL REVIEW: 29 May 1982

FY 2006-07

**PINE MOUNTAIN COAL CO. INC.**

15615 Rayner Hill Drive SW  
Frostburg, MD 21532  
Phone: 301-463-6518  
Fax: 301-463-2572

To: Board of Education of Allegany County

From: Pine Mountain Coal Company Inc.

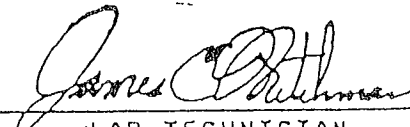
Date: August 21, 2006

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

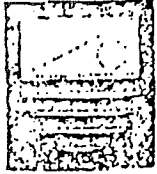
COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: AHS STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 06-05-06  
ANALYSIS DATE: 06-07-06 CODE: DS LAB NUMBER: L 728

	AS RECEIVED	DRY COAL	
MOISTURE:	1.88		
ASH:	8.65	8.82	
VOLATILE MATTER:	19.59	19.97	
FIXED CARBON:	69.88	71.21	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	0.69	0.70	
BTU:	13932	14199	MAF: 15572
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	0.50		
OTHER: SCREEN - 2 X 1/4 = 96.9%		1/4 X 0 = 3.1%	
OTHER:			

  
LAB TECHNICIAN





# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 1

2005 N Center Ave  
Somerset PA 15401

814/445-1571

014/445-0000

FAX: 814/445-6729

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 06-05-06

Analyzed on: 06-07-06

Description: Pine Mt. AHS Stoker #728

LAB NO. 98-C058945

Ash Fusion (Reducing Atmosphere)		Hemi T.	Fluid T.
Initial D.	Softening T.		
Temp ° F	2800 +	2800 +	2800 +

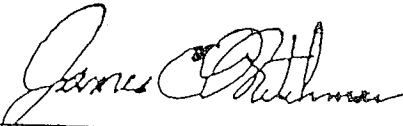
Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #1 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 06-05-06  
ANALYSIS DATE: 06-07-06 CODE: OS LAB NUMBER: L 729

	AS RECEIVED	DRY COAL	
MOISTURE:	1.43		
ASH:	12.98	13.16	
VOLATILE MATTER:	19.77	20.06	
FIXED CARBON:	65.82	66.77	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.45	1.48	
BTU:	13237	13429	MAF: 15465
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.10		
OTHER: SCREEN - 1 1/2 X 3/4 = 48.5%		3/4 X 1/2 = 32.5%	
OTHER: 1/2 X 0 = 19.0%			



LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 06-05-07

Analyzed on: 06-07-06

Description: Pine Mt. Stoker #1 #729

LAB NO. 98-C058946

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2500	2550	2580	2630

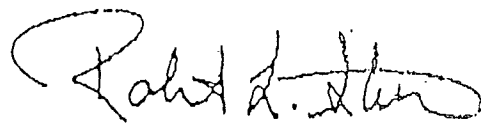
P.2

2005 N Center Ave  
Somerset PA 15501

814/443-1871

814/445-6563

FAX: 814/445-0723



Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #2 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 06-05-07  
ANALYSIS DATE: 06-07-06 CODE: DS LAB NUMBER: L 730


	AS RECEIVED	DRY COAL	
MOISTURE:	1.60		
ASH:	13.27	13.48	
VOLATILE MATTER:	20.00	20.33	
FIXED CARBON:	65.13	66.19	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.40	1.43	
BTU:	13232	13447	MAF: 15542

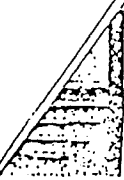
ASTM FREE SWELLING INDEX #: 9

LBS SULFUR/MILLION BTU: 1.06

OTHER: SCREEN - 2 X 1/2 = 91.0% 1/2 X 0 = 9.0%

OTHER:

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

P.3  
2005 N Center Ave  
Somerset PA 15501

814/443-1571  
610/645-0000  
FAX: 814/443-1571

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 06-05-06

Analyzed on: 06-07-06

Description: Pine Mt. Stoker #2 #730

LAB NO. 98-C058947

Ash Fusion (Reducing Atmosphere)			
	Initial D.	Softening T.	
Temp ° F	2580	2630	

Hemi T.  
2680

Fluid T.  
2740

Robert L. Stull  
Director of Coal Services



# MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305



No. 491

BITUMINOUS COAL DUST

## SECTION I. MATERIAL IDENTIFICATION

**MATERIAL NAME:** BITUMINOUS COAL DUST  
**DESCRIPTION:** Includes coals between lignites and anthracites with "fixed carbon" <36%, "volatile matter" >14% "calorific value" >10,500 BTU/lb (see ASTM D388 & D3172). Particulate <75 μm (thru No. 200 sieve), dispersable in air, is of primary interest. Coal consists of conjugated poly(aromatic/unsaturated/saturated) ring structures with heterocycles containing O, N, and S. C<sub>102</sub>H<sub>78</sub>O<sub>10</sub>N<sub>2</sub> has been suggested as a "coal molecule".  
**SOURCE:** Mining, handling, and pulverizing processes with coal.

## SECTION II. INGREDIENTS AND HAZARDS

"Proximate Analysis" of some air-dried bituminous coals:					HAZARD DATA
Source	"Moisture"	"Volatiles"	"Fixed Carbon"	"Ash"	
West Virginia	1.8	20.4	72.4	5.4	ACGIH TLV 8-hr TWA 2 mg/m <sup>3</sup> or OSHA PEL 2.4 mg/m <sup>3</sup> Respirable dust with <5% quartz*
Pennsylvania	1.2	34.5	58.4	5.9	
Illinois	8.4	35.0	48.2	8.4	
Wyoming	11.0	38.6	40.2	10.2	
Bituminous coals also contain trace metals, sulfur (0.4-3.5) and nitrogen (0.9-1.5%), depending on source and type. *Respirable dust is particulate <5 μm in size. Use quartz formula (MSDS #71) if quartz content is >5%.					

## SECTION III. PHYSICAL DATA

Boiling point ----- N/A Specific gravity (H<sub>2</sub>O=1) - 1.3-1.6  
 Vapor pressure at 25 C ----- Negligible Volatiles at 25 C ----- Negligible  
 Water solubility ----- Negligible  
 Appearance & Odor: Black powder; little or no odor.

## SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.**	Flammability Limits In Air	LOWER	UPPER
	(cloud) >1014 F (flavor) >392 F	cloud(10 μm Av.), 50mJ spark	>0.05*	1 oz/ft <sup>3</sup>

Extinguishing Media: Nitrogen, carbon dioxide, steam, water, ammonium biphosphate powder  
 A water spray can be used to cautiously wet down coal dust to help prevent ignition (avoid raising dust). It is a fire and explosion hazard when exposed to heat or flame. Firefighters should have self-contained breathing equipment and protective clothing.

\*Ca 1 oz/ft<sup>3</sup> gives max. flame energy; smallest 20% of particulate determines ignition characteristics; 10-50mJ spark needed at 0-5% moisture, respectively, to initiate combustion in 200 mesh dust. \*\*A pile of 2-7 μm Pittsburgh coal dust heated at 169 C can self-ignite in one hr.

## SECTION V. REACTIVITY DATA

Coal dust is fairly stable at 25 C, but it can react with oxygen from the air, very slowly at room temperature and faster when heated. In piles with good heat retention a slow heat build-up and spontaneous ignition can occur. (Humid air can accelerate this ignition of dry coal.) On heating coal releases combustibles by devolatilization and pyrolysis. When these burn, they can heat the solid carbon; hot carbon reacts with O<sub>2</sub>, CO<sub>2</sub>, and water vapor to produce combustible gases. Oxidation products of coal can include oxides of carbon, nitrogen and sulfur, partially oxidized hydrocarbons, soot and fly ash. This material is incompatible with strong oxidizing agents, especially when heated.

**SECTION VI. HEALTH HAZARD INFORMATION**

TLV 2 mg/m<sup>3</sup> (See Sect II)

Coal workers pneumoconiosis (CWP) can occur after years of excessive exposure to respirable coal dust in the mining, handling and processing of coal. Respirable quartz particulate can be simultaneously present with the coal, especially in the mine. In general, coal dust is deposited in the lungs like quartz but requires over 10X as much for adverse effects. It does not kill macrophages; reticulin fibers form, but little collagen is generated. (That which forms is often attributed to quartz.) The severity of CWP is directly related to the amount of coal dust in the lungs. In many CWP does not progress beyond the simple stage, which is detectable by x-ray as round and irregular "coal macules" of 1-5 mm diameter, but which does not change lung function or shorten life. CWP is a precursor of progressive massive fibrosis (PMF) resulting in large masses of fibrous tissue development (mechanisms unclear). PMF impairs pulmonary function and shortens life. There is no evidence of association of CWP and bronchogenic cancer. Chronic bronchitis and emphysema are reported to result from excessive coal dust inhalation. Persons having rheumatoid arthritis in conjunction with simple CWP may have rapidly developing lung damage. (Caplan's Syndrome).

**SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES**

Remove ignition sources. Clean-up personnel may need dust respirators and eye protection. Coal dust should be cleaned up in manner that avoids dispersing particulate in air or into the environment.

Collect dust in a covered metal container for use as fuel or for disposal.

**DISPOSAL:** Use as fuel in a pulverized coal-burning furnace, or burn as slurry in water. For other incineration, possible dust explosions or "puffs" and high temperature need to be considered. Scrap coal dust may be wet down thoroughly with water in a container and buried in landfill. Follow Federal, State, and Local regulations.

**SECTION VIII. SPECIAL PROTECTION INFORMATION**

Provide explosion-proof general and local exhaust ventilation to meet TLV requirements. Approved filtration of exhausted air may be required to prevent excessive environmental dispersion of dust.

Where airborne dust is excessive in the workplace, dust respirators and eye protection are needed.

In working with coal dust, use good personal hygiene. Wear regularly cleaned work clothing. Showering and changing into street clothing after work may be desirable.

Follow good housekeeping procedures to control coal dust build up. Collect dust from settling areas and surfaces in a manner to avoid generating airborne dust. Design dust suppression measures into processes. Meet explosion-proof code requirements for electrical services where coal dust may be present.

**SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS**

Keep sources of heat and ignition, flammable materials, and strong oxidizing agents away from areas where coal dust may collect. Prevent static sparks. Inerting may be desirable, such as powdered CaCO<sub>3</sub> or rock dust laid down over coal dust on mine floor or a nitrogen enriched atmosphere in a coal pulverizing machine.

Reference: L.D. Smoot, et. al., "Pulverized Coal Power Plant Fires and Explosions" Parts I, II and V, Brigham Young University, Mechanical Engineering Dept., Prepared for Utah Power and Light Co., Salt Lake City, Utah 1979-1981.

OSHA Classification: FLAMMABLE SOLID  
 DATA SOURCE(S) CODE: 2-1, 14, 38, 43, 47

Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: M/S  
 CRD *J. K. Nielsen*

Industrial Hygiene  
 and Safety *JW 5-11-82*

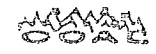
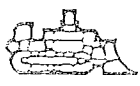
MEDICAL REVIEW: 29 May 1982

FY 2005-06

*PINE MOUNTAIN COAL CO.*

15615 RAYNER HILL DRIVE SW  
FROSTBURG, MD 21532  
301-463-0518

RAYNER & SONS  
Fax: 301-463-2572



Fed. ID # 51-0451537

To: Board of Education of Allegany County  
From: Pine Mountain Coal Company Inc.  
Date: August 22, 2005  
Subject: Coal bid for Allegany County Schools for 2005-2006



SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: AHS STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 6-6-05  
ANALYSIS DATE: 6-8-05 CODE: DS LAB NUMBER: L 728

	AS RECEIVED	DRY COAL	
MOISTURE:	1.88		
ASH:	8.65	8.82	
VOLATILE MATTER:	19.59	19.97	
FIXED CARBON:	69.88	71.21	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	0.69	0.70	
BTU:	13932	14199	MAF: 15572

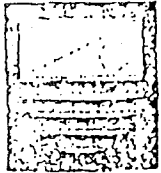
ASTM FREE SWELLING INDEX #: 9

LBS SULFUR/MILLION BTU: 0.50

OTHER: SCREEN. - 2 X 1/4 = 96.9% 1/4 X 0 = 3.1%

OTHER:

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 1

2005 N Center Ave  
Somerset PA 15501

814/445-1871

814/445-8888

FAX: 814/445-6799

## COAL ANALYSIS RESULTS

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 6-6-05

Analyzed on: 6-8-05

Description: Pine Mt. AHS Stoker #728

LAB NO. 98-C058945

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2800 +	2800 +	2800 +	2800 +

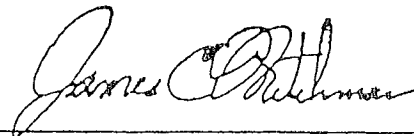
Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #1 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 6-6-05  
ANALYSIS DATE: 6-8-05 CODE: DS LAB NUMBER: L 729

	AS RECEIVED	DRY COAL	
MOISTURE:	1.43		
ASH:	12.98	13.16	
VOLATILE MATTER:	19.77	20.06	
FIXED CARBON:	65.82	66.77	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.45	1.48	
BTU:	13237	13429	MAF: 15465
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.10		
OTHER: SCREEN - 1 1/2 X 3/4 =	48.5%	3/4 X 1/2 =	32.5%
OTHER: 1/2 X 0 =	19.0%		



LAB TECHNICIAN

# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P.2

2005 N Center Ave  
Somerset PA 15501

814/443-1671  
814/445-6563  
FAX: 814/445-8723

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 6-6-05

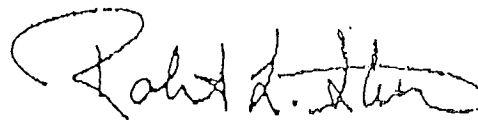
Analyzed on: 6-8-05

Description: Pine Mt. Stoker #1 #729

LAB NO. 98-C058946

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2500	2550	2580	2630



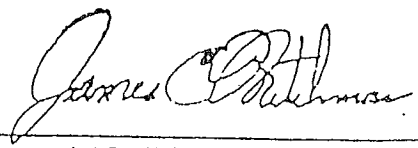
Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT.COAL  
DESCRIPTION: #2 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE: 6-6-05  
ANALYSIS DATE: 6-8-05 CODE: DS LAB NUMBER: L 730

	AS RECEIVED	DRY COAL	
MOISTURE:	1.60		
ASH:	13.27	13.48	
VOLATILE MATTER:	20.00	20.33	
FIXED CARBON:	65.13	66.19	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.40	1.43	
BTU:	13232	13447	MAF: 15542
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.06		
OTHER: SCREEN - 2 X 1/2 = 91.0%		1/2 X 0 = 9.0%	
OTHER:			

  
LAB TECHNICIAN

# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 3

2005 N Center Ave  
Somerset PA 15501

814/443-1071  
610/445-0000  
FAX: 610/445-0770

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date: 6-6-05

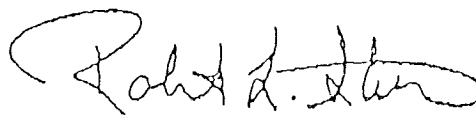
Analyzed on: 6-8-05

Description: Pine Mt. Stoker #2 #730

LAB NO. 98-C058947

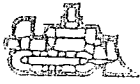
Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2580	2630	2680	2740



Robert L. Stull  
Director of Coal Services

FY 2004-05



PINE MOUNTAIN COAL CO.

15615 RAYNER HILL DRIVE SW  
FROSTBURG, MD 21532  
301-463-6518

RAYNER & SONS  
Fax: 301-463-2572

*Call Dave*

*701-697-0009*

**ALLEGANY  
COAL**

FED. ID # 51-0451537

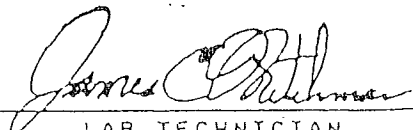
TO: Board of Education of Allegany County  
From: Pine Mountain Coal Company Inc.  
Date: August 23, 2004  
Subject: Coal Bid for Allegany County Schools for 2004-2005

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

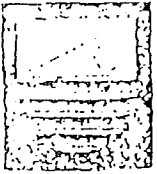
COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: AHS STOKER  
SAMPLED BY: CLIENT SAMPLE DATE:  
ANALYSIS DATE: 6-8-04 CODE: DS LAB NUMBER: L 728

	AS RECEIVED	DRY COAL	
MOISTURE:	1.88		
ASH:	8.65	8.82	
VOLATILE MATTER:	19.59	19.97	
FIXED CARBON:	69.88	71.21	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	0.69	0.70	
BTU:	13932	14199	MAF: 15572
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	0.50		
OTHER:	SCREEN - 2 X 1/4 = 96.9%	1/4 X 0 = 3.1%	
OTHER:			

  
LAB TECHNICIAN





# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 1

2005 N Center Ave  
Somerset PA 15426

814/445-1871  
814/445-6900  
FAX: 814/445-6709

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

Analyzed on: 6-11-04

Description: Pine Mt. AHS Stoker #728

LAB NO. 98-C058945

Ash Fusion (Reducing Atmosphere)				
	Initial D.	Softening T.	Hemi T.	Fluid T.
Temp ° F	2800 +	2800 +	2800 +	2800 +

Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT.COAL  
DESCRIPTION: #1 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE:  
ANALYSIS DATE: 5-3-04 CODE: OS LAB NUMBER: L 729

	AS RECEIVED	DRY COAL	
MOISTURE:	1.43		
ASH:	12.98	13.16	
VOLATILE MATTER:	19.77	20.06	
FIXED CARBON:	65.82	66.77	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.45	1.48	
BTU:	13237	13429	MAF: 15465
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.10		
OTHER: SCREEN - 1 1/2 X 3/4 =	48.5%	3/4 X 1/2 =	32.5%
OTHER: 1/2 X 0 =	19.0%		

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P.2

2005 N Center Ave  
Somerset PA 15501

814/443-1871

814/445-6563

FAX: 814/445-0723

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

Analyzed on: 6-11-04

Description: Pine Mt. Stoker #1 #729

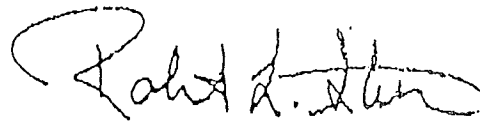
LAB NO. 98-C058946

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.
	2500	2550

Hemi T.
2580

Fluid T.
2630



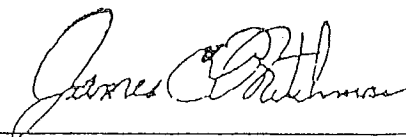
Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #2 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE:  
ANALYSIS DATE: 6-8-04 CODE: DS LAB NUMBER: L 730

	AS RECEIVED	DRY COAL	
MOISTURE:	1.60		
ASH:	13.27	13.48	
VOLATILE MATTER:	20.00	20.33	
FIXED CARBON:	65.13	66.19	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.40	1.43	
BTU:	13232	13447	MAF: 15542
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.06		
OTHER:	SCREEN - 2 X 1/2 = 91.0%	1/2 X 0 = 9.0%	
OTHER:			



LAB TECHNICIAN

# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

P.3

2005 N Center Ave  
Somerset PA 15501

814/443-1071

814/443-1072

FAX: 516/200-0770

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

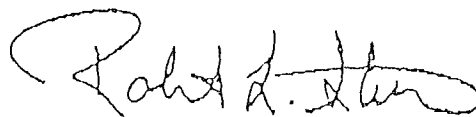
Analyzed on: 6-11-04

Description: Pine Mt. Stoker #2 #730

LAB NO. 98-C058947

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2580	2630	2680	2740



Robert L. Stull  
Director of Coal Services

# MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305



No. 491

BITUMINOUS  
COAL DUST

## SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: BITUMINOUS COAL DUST

DESCRIPTION: Includes coals between lignites and anthracites with "fixed carbon" <36%, "volatile matter" >14% "calorific value" >10,500 BTU/lb (see ASTM D388 & D3172). Particulate <75 μm (thru No. 200 sieve), dispersible in air, is of primary interest. Coal consists of conjugated poly(aromatic/unsaturated/saturated) ring structures with heterocycles containing O, N, and S. C<sub>102</sub>H<sub>78</sub>O<sub>10</sub>N<sub>2</sub> has been suggested as a "coal molecule".

SOURCE: Mining, handling, and pulverizing processes with coal.

## SECTION II. INGREDIENTS AND HAZARDS

### HAZARD DATA

"Proximate Analysis" of some air-dried bituminous coals:

Source	"Moisture"	"Volatiles"	"Fixed Carbon"	"Ash"
West Virginia	1.8	20.4	72.4	5.4
Pennsylvania	1.2	34.5	58.4	5.9
Illinois	8.4	35.0	48.2	8.4
Wyoming	11.0	38.6	40.2	10.2

ACGIH TLV  
8-hr TWA 2 mg/m<sup>3</sup> or  
OSHA PEL 2.4 mg/m<sup>3</sup>  
Respirable dust with  
<5% quartz\*

Bituminous coals also contain trace metals, sulfur (0.4-3.5) and nitrogen (0.9-1.5%), depending on source and type.

\*Respirable dust is particulate <5 μm in size. Use quartz formula (MSDS #71) if quartz content is >5%.

## SECTION III. PHYSICAL DATA

Boiling point ----- N/A Specific gravity (H<sub>2</sub>O=1) - 1.3-1.6  
Vapor pressure at 25 C ----- Negligible Volatiles at 25 C ----- Negligible  
Water solubility ----- Negligible

Appearance & Odor: Black powder; little or no odor.

## SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.**	Flammability Limits In Air	LOWER	UPPER
	{cloud} >1114 F {layer} >392 F	{cloud}(10 μm Av.), 50mJ spark	>0.05*	

Extinguishing Media: Nitrogen, carbon dioxide, steam, water, ammonium biphosphate powder  
A water spray can be used to cautiously wet down coal dust to help prevent ignition (avoid raising dust). It is a fire and explosion hazard when exposed to heat or flame. Firefighters should have self-contained breathing equipment and protective clothing.

\*Ca 1 oz/ft<sup>3</sup> gives max. flame energy; smallest 20% of particulate determines ignition characteristics. 10-50mJ spark needed at 0-5% moisture, respectively, to initiate combustion in 200 mesh dust. \*\*A pile of 2-7 μm Pittsburgh coal dust heated at 169 C

## SECTION V. REACTIVITY DATA

Coal dust is fairly stable at 25 C, but it can react with oxygen from the air, very slowly at room temperature and faster when heated. In piles with good heat retention a slow heat build-up and spontaneous ignition can occur. (Humid air can accelerate this ignition of dry coal.) On heating coal releases combustibles by devolatilization and pyrolysis. When these burn, they can heat the solid carbon; hot carbon reacts with O<sub>2</sub>, CO<sub>2</sub>, and water vapor to produce combustible gases. Oxidation products of coal can include oxides of carbon, nitrogen and sulfur, partially oxidized hydrocarbons, soot, and fly ash. This material is incompatible with strong oxidizing agents, especially when heated.

SECTION VI. HEALTH HAZARD INFORMATION

TLV 2 mg/m<sup>3</sup> (See Sect II)

Coal workers pneumoconiosis (CWP) can occur after years of excessive exposure to respirable coal dust in the mining, handling and processing of coal. Respirable quartz particulate can be simultaneously present with the coal, especially in the mine. In general, coal dust is deposited in the lungs like quartz but requires over 10X as much for adverse effects. It does not kill macrophages; reticulin fibers form, but little collagen is generated. (That which forms is often attributed to quartz.) The severity of CWP is directly related to the amount of coal dust in the lungs. In many CWP does not progress beyond the simple stage, which is detectable by x-ray as round and irregular "coal macules" of 1-5 mm diameter, but which does not change lung function or shorten life. CWP is a precursor of progressive massive fibrosis (PMF) resulting in large masses of fibrous tissue development (mechanisms unclear). PMF impairs pulmonary function and shortens life. There is no evidence of association of CWP and bronchogenic cancer. Chronic bronchitis and emphysema are reported to result from excessive coal dust inhalation. Persons having rheumatoid arthritis in conjunction with simple CWP may have rapidly developing lung damage. (Caplan's Syndrome).

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Remove ignition sources. Clean-up personnel may need dust respirators and eye protection. Coal dust should be cleaned up in manner that avoids dispersing particulate in air or into the environment. Collect dust in a covered metal container for use as fuel or for disposal. DISPOSAL: Use as fuel in a pulverized coal-burning furnace, or burn as slurry in water. For other incineration, possible dust explosions or "puffs" and high temperature need to be considered. Scrap coal dust may be wet down thoroughly with water in a container and buried in landfill. Follow Federal, State, and Local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide explosion-proof general and local exhaust ventilation to meet TLV requirements. Approved filtration of exhausted air may be required to prevent excessive environmental dispersion of dust. Where airborne dust is excessive in the workplace, dust respirators and eye protection are needed. In working with coal dust, use good personal hygiene. Wear regularly cleaned work clothing. Showering and changing into street clothing after work may be desirable. Follow good housekeeping procedures to control coal dust build up. Collect dust from settling areas and surfaces in a manner to avoid generating airborne dust. Design dust suppression measures into processes. Meet explosion-proof code requirements for electrical services where coal dust may be present.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Keep sources of heat and ignition, flammable materials, and strong oxidizing agents away from areas where coal dust may collect. Prevent static sparks. Inerting may be desirable, such as powdered CaCO<sub>3</sub> or rock dust laid down over coal dust on mine floor or a nitrogen enriched atmosphere in a coal pulverizing machine.

Reference: L.D. Smoot, et. al., "Pulverized Coal Power Plant Fires and Explosions" Parts I, II and V, Brigham Young University, Mechanical Engineering Dept., Prepared for Utah Power and Light Co., Salt Lake City, Utah 1979-1981.  
 Hazard Classification: FLAMMABLE SOLID  
 DATA SOURCE(S) CODE: 2-4, 14, 38, 41, 47

Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: M/S *J. M. Nielsen*  
 CRD

Industrial Hygiene and Safety *JW 5-11-82*

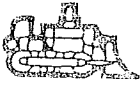
MEDICAL REVIEW: 29 May 1982

17 2003-07

**PINE MOUNTAIN COAL CO.**

15615 RAYNER HILL DRIVE SW  
FROSTBURG, MD 21532  
301-463-6518

RAYNER & SONS  
Fax: 301-463-2572



FED. ID # 52-2093182

TO: Board of Education of Allegany County  
From: Pine Mountain Coal Company Inc.  
Date: August 11, 2003  
Subject: Coal Bid for Allegany County Schools for 2003-2004



SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15562  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: AHS STOKER  
SAMPLED BY: CLIENT SAMPLE DATE:  
ANALYSIS DATE: 6-3-03 CODE: DS LAB NUMBER: L 728

	AS RECEIVED	DRY COAL	
MOISTURE:	1.88		
ASH:	8.65	8.82	
VOLATILE MATTER:	19.59	19.97	
FIXED CARBON:	69.88	71.21	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	0.69	0.70	
BTU:	13932	14199	MAF: 15572

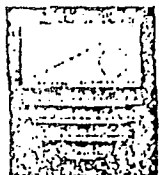
ASTM FREE SWELLING INDEX #: 9

LBS SULFUR/MILLION BTU: 0.50

OTHER: SCREEN - 2 X 1/4 = 96.9% 1/4 X 0 = 3.1%

OTHER:

  
LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

P. 1

2005 N Center Ave  
Somerset PA 15501

814/445-1371

814/445-8888

FAX: 814/445-6729

## COAL ANALYSIS REPORT

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

Analyzed on: 6-6-03

Description: Pine Mt. AHS Stoker #728

LAB NO. 98-C058945

Ash Fusion (Reducing Atmosphere)

	Initial D.	Softening T.	Hemi T.	Fluid T.
Temp ° F	2800 +	2800 +	2800 +	2800 +

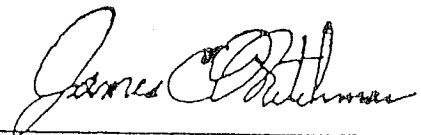
Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT. COAL  
DESCRIPTION: #1 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE:  
ANALYSIS DATE: 6-3-03 CODE: DS LAB NUMBER: L 729

	AS RECEIVED	DRY COAL	
MOISTURE:	1.43		
ASH:	12.98	13.16	
VOLATILE MATTER:	19.77	20.06	
FIXED CARBON:	65.82	66.77	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.45	1.48	
BTU:	13237	13429	MAF: 15465
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.10		
OTHER: SCREEN - 1 1/2 X 3/4 = 48.5%		3/4 X 1/2 = 32.5%	
OTHER: 1/2 X 0 = 19.0%			



LAB TECHNICIAN



# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

P.2

2005 N Center Ave  
Somerset PA 15501

814/443-1671  
814/445-6563  
FAX: 814/445-0723

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

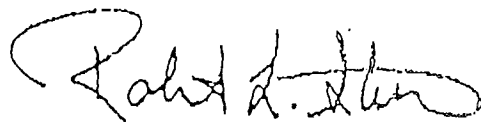
Analyzed on: 6-6-03

Description: Pine Mt. Stoker #1 #729

LAB NO. 98-C058946

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2500	2550	2580	2630



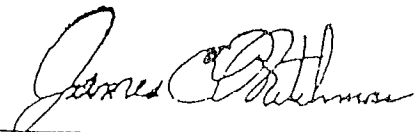
Robert L. Stull  
Director of Coal Services

SUMMIT TECHNICAL LABORATORIES  
P.O. BOX 147  
MEYERSDALE, PENNSYLVANIA 15552  
(814)634-0485

COAL ANALYSIS REPORT

CLIENT: PINE MT.COAL  
DESCRIPTION: #2 STOKER  
SAMPLED BY: CLIENT SAMPLE DATE:  
ANALYSIS DATE: 6-3-03 CODE: DS LAB NUMBER: L 730

	AS RECEIVED	DRY COAL	
MOISTURE:	1.60		
ASH:	13.27	13.48	
VOLATILE MATTER:	20.00	20.33	
FIXED CARBON:	65.13	66.19	
	<u>100.00</u>	<u>100.00</u>	
SULFUR:	1.40	1.43	
BTU:	13232	13447	MAF: 15542
ASTM FREE SWELLING INDEX #:	9		
LBS SULFUR/MILLION BTU:	1.06		
OTHER: SCREEN - 2 X 1/2 = 91.0%		1/2 X 0 = 9.0%	
OTHER:			



LAB TECHNICIAN

# GEOCHEMICAL TESTING

a division of Energy Center, Inc.

## COAL ANALYSIS REPORT

P.3

2005 N Center Ave  
Somerset PA 15501

814/443-1971

814/445-8810

FAX: 814/445-8710

Client: SUMMIT TECHNICAL LABS

Sampled by: PM

Sampling Date:

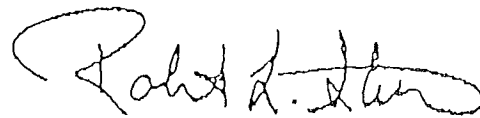
Analyzed on: 6-6-03

Description: Pine Mt. Stoker #2 #730

LAB NO. 98-C058947

Ash Fusion (Reducing Atmosphere)

Temp ° F	Initial D.	Softening T.	Hemi T.	Fluid T.
	2580	2630	2680	2740



Robert L. Stull  
Director of Coal Services

# MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305



NO. 491

BITUMINOUS  
COAL DUST

Date May 1982

## SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: BITUMINOUS COAL DUST

DESCRIPTION: Includes coals between lignites and anthracites with "fixed carbon" <36%, "volatile matter" >14%, "calorific value" >10,500 BTU/lb (see ASTM D388 & D3172). Particulate <75 μm (thru No. 200 sieve), dispersable in air, is of primary interest. Coal consists of conjugated poly(aromatic/unsaturated/saturated) ring structures with heterocycles containing O, N, and S. C<sub>102</sub>H<sub>78</sub>O<sub>10</sub>N<sub>2</sub> has been suggested as a "coal molecule".

SOURCE: Mining, handling, and pulverizing processes with coal.

## SECTION II. INGREDIENTS AND HAZARDS

"Proximate Analysis" of some air-dried bituminous coals:

Source	"Moisture"	"Volatiles"	"Fixed Carbon"	"Ash"
West Virginia	1.8	20.4	72.4	5.4
Pennsylvania	1.2	34.5	58.4	5.9
Illinois	8.4	35.0	48.2	8.4
Wyoming	11.0	38.6	40.2	10.2

### HAZARD DATA

ACGIH TLV  
8-hr TWA 2 mg/m<sup>3</sup> or  
OSHA PEL 2.4 mg/m<sup>3</sup>  
Respirable dust with  
<5% quartz\*

Bituminous coals also contain trace metals, sulfur (0.4-3.5) and nitrogen (0.9-1.5%), depending on source and type.

\*Respirable dust is particulate <5 μm in size. Use quartz formula (MSDS #71) if quartz content is >5%.

## SECTION III. PHYSICAL DATA

Boiling point ----- N/A Specific gravity (H<sub>2</sub>O=1) - 1.3-1.6  
Vapor pressure at 25 C ----- Negligible Volatiles at 25 C ----- Negligible  
Water solubility ----- Negligible

Appearance & Odor: Black powder; little or no odor.

## SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.**	Flammability Limits in Air	LOWER	UPPER
	{cloud} >1114 F {layer} 5392 F	cloud(10 μm Av.), 50mJ spark	>0.05*	

Extinguishing Media: Nitrogen, carbon dioxide, steam, water, ammonium biphosphate powder  
A water spray can be used to cautiously wet down coal dust to help prevent ignition (avoid raising dust). It is a fire and explosion hazard when exposed to heat or flame. Firefighters should have self-contained breathing equipment and protective clothing.

\*Ca 1 oz/ft<sup>3</sup> gives max. flame energy; smallest 20% of particulate determines ignition characteristics; 10-50mJ spark needed at 0-5% moisture, respectively, to initiate combustion in 400 mesh dust. \*\*A pile of 2-7 μm Pittsburgh coal dust heated at 169 C

## SECTION V. REACTIVITY DATA

Coal dust is fairly stable at 25 C, but it can react with oxygen from the air, very slowly at room temperature and faster when heated. In piles with good heat retention a slow heat build-up and spontaneous ignition can occur. (Humid air can accelerate this ignition of dry coal.) On heating coal releases combustibles by devolatilization and pyrolysis. When these burn, they can heat the solid carbon; hot carbon reacts with O<sub>2</sub>, CO<sub>2</sub>, and water vapor to produce combustible gases. Oxidation products of coal can include oxides of carbon, nitrogen and sulfur, partially oxidized hydrocarbons, soot and fly ash. This material is incompatible with strong oxidizing agents, especially when heated.

## SECTION VI. HEALTH HAZARD INFORMATION

NO. 491

TLV 2 mg/m<sup>3</sup> (See Sect II)

Coal workers pneumoconiosis (CWP) can occur after years of excessive exposure to respirable coal dust in the mining, handling and processing of coal. Respirable quartz particulate can be simultaneously present with the coal, especially in the mine. In general, coal dust is deposited in the lungs like quartz but requires over 10X as much for adverse effects. It does not kill macrophages; reticulin fibers form, but little collagen is generated. (That which forms is often attributed to quartz.)

The severity of CWP is directly related to the amount of coal dust in the lungs. In many cases CWP does not progress beyond the simple stage, which is detectable by x-ray as round and irregular "coal macules" of 1-5 mm diameter, but which does not change lung function or shorten life. CWP is a precursor of progressive massive fibrosis (PMF) resulting in large masses of fibrous tissue development (mechanisms unclear). PMF impairs pulmonary function and shortens life. There is no evidence of association of CWP and bronchogenic cancer.

Chronic bronchitis and emphysema are reported to result from excessive coal dust inhalation. Persons having rheumatoid arthritis in conjunction with simple CWP may have rapidly developing lung damage. (Caplan's Syndrome).

## SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Remove ignition sources. Clean-up personnel may need dust respirators and eye protection. Coal dust should be cleaned up in manner that avoids dispersing particulate in air or into the environment.

Collect dust in a covered metal container for use as fuel or for disposal.

**DISPOSAL:** Use as fuel in a pulverized coal-burning furnace, or burn as slurry in water. For other incineration, possible dust explosions or "puffs" and high temperature need to be considered. Scrap coal dust may be wet down thoroughly with water in a container and buried in landfill. Follow Federal, State, and Local regulations.

## SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide explosion-proof general and local exhaust ventilation to meet TLV requirements. Approved filtration of exhausted air may be required to prevent excessive environmental dispersion of dust.

Where airborne dust is excessive in the workplace, dust respirators and eye protection are needed.

In working with coal dust, use good personal hygiene. Wear regularly cleaned work clothing. Showering and changing into street clothing after work may be desirable.

Follow good housekeeping procedures to control coal dust build up. Collect dust from settling areas and surfaces in a manner to avoid generating airborne dust. Design dust suppression measures into processes. Meet explosion-proof code requirements for electrical services where coal dust may be present.

## SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Keep sources of heat and ignition, flammable materials, and strong oxidizing agents away from areas where coal dust may collect. Prevent static sparks. Inerting may be desirable, such as powdered CaCO<sub>3</sub> or rock dust laid down over coal dust on mine floor or a nitrogen enriched atmosphere in a coal pulverizing machine.

Reference: L.D. Smoot, et. al., "Pulverized Coal Power Plant Fires and Explosions" Parts I, II and V, Brigham Young University, Mechanical Engineering Dept., Prepared for Utah Power and Light Co., Salt Lake City, Utah 1979-1981.

Classification: FLAMMABLE SOLID

DATA SOURCE(S) CODE: 2-1, 11, 33, 41, 47

Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: MIS  
CRO

Industrial Hygiene  
and Safety

MEDICAL REVIEW: 5-11-82  
29 May 1982