

CERTIFIED REFERENCE MATERIALS AND REFERENCE SAMPLES FOR COAL AND COKE LABORATORIES

Pricing

Sulfur (coal and coke)	\$ 55.00 per bottle
Proximate (coal, coke, and lignite)	\$ 100.00 per bottle
Complete (coal)	\$ 150.00 per bottle
Ash Fusion (coal ash)	\$ 55.00 per bottle

Discounts

We offer a 5% discount for current customers of the Interlab programs.

We offer a 10% discount on single orders of 10 or more bottles.

Discounts may be combined.

Terms and Conditions

Customers are billed when the order is shipped.

Terms are net 30 days.

Customers may pay by Visa, Mastercard, or American Express.

Placing Orders

Orders may be placed by calling our office, faxing an order to our office, or by email to orders@coalstandards.com.

Our web site, www.coalstandards.com, offers a downloadable order form that you can print and fax to our office.

Contact Us

Scott Rigsby
Vanguard Solutions, Inc.
P.O. Box 1970
Ashland, KY 41105-1970
Phone: 1.606.325.1970
Fax: 1.606.325.2689

VANGUARD SOLUTIONS, INC.

The analysis listed below represents an expected value or range for a particular sample.
Call 1-606-325-1970 for exact chemistry and availability.

Certified Reference Materials

Sulfur - Coal and Coke

Contents: 50 grams

<u>Catalog Number</u>	<u>Type</u>	<u>% Dry Sulfur</u>
VS1-001	Coal	0.35 - 0.45
VS1-021	Coal	0.45 - 0.65
VS1-031	Coal	0.65 - 0.90
VS1-041	Coal	0.90 - 1.25
VS1-051	Coal	1.25 - 1.75
VS1-061	Coal	1.75 - 2.25
VS1-071	Coal	2.25 - 2.75
VS1-081	Coal	2.75 - 3.25
VS1-091	Coal	3.25 - 3.75
VS1-101	Coal	3.75 - 4.50
VS2-002	Petroleum Coke	0.70 - 0.90
VS2-022	Petroleum Coke	1.70 - 1.90

Proximate Certified Reference Standards

Coal, Coke, and Lignite

Contents: 50 grams

<u>Catalog Number</u>	<u>Type</u>	<u>% Dry Sulfur</u>	<u>% Dry Ash</u>	<u>% Dry Volatile</u>
VS3-003	Coal	> 2.2	< 7.0	30 - 50
VS3-013	Coal	< 2.2	< 7.0	30 - 50
VS3-023	Coal	> 2.2	7.0 - 10.0	30 - 50
VS3-033	Coal	< 2.2	7.0 - 10.0	30 - 50
VS3-043	Coal	> 2.2	10.0 - 17.0	30 - 50
VS3-053	Coal	< 2.2	10.0 - 17.0	30 - 50
VS3-063	Coal	> 2.2	> 17.0	30 - 50
VS3-073	Coal	< 2.2	> 17.0	30 - 50
VS4-004	Coke	0.80 - 1.20	-----	1 - 15
VS5-005	Lignite	< 2.2	-----	30 - 50

Ash Fusion Standard - Coal

Contents: 15 grams

<u>Catalog Number</u>	<u>Type</u>	<u>Certified Values</u>
VS7-001	Coal Ash	Reducing and Oxidizing Temperatures

To order, contact Vanguard Solutions, Inc. at P.O. Box 1970, Ashland, KY 41105 - 1.606.325.1970
On the web at www.coalstandards.com

VANGUARD SOLUTIONS, INC.

CERTIFIED CALIBRATION STANDARDS

The analysis listed below represents an expected value or range for a particular sample.
Call 1-606-325-1970 for exact chemistry and availability.

Complete Certified Reference Standards - Coal

Contents - 50 grams

	Catalog Number						
	VS6-006	VS6-016	VS6-026	VS6-036	VS6-046	VS6-056	VS6-066
Ultimate Analysis (Target Values)							
% Carbon	< 72.0	< 72.0	< 72.0	> 72.0	> 72.0	> 72.0	> 72.0
% Hydrogen	< 4.75	< 4.75	> 4.75	< 4.75	< 4.75	> 4.75	> 4.75
% Nitrogen	< 1.30	> 1.30	> 1.30	< 1.30	> 1.30	< 1.30	> 1.30

The ultimate and proximate analyses represent typical values for these products. Please inquire about current values.

Ultimate Analysis (Average Values)							
% Carbon	63.17	68.54	69.55	83.13	80.06	73.08	74.99
% Hydrogen	4.22	4.49	4.84	4.45	4.49	4.79	5.09
% Nitrogen	1.19	1.34	1.33	1.21	1.36	1.23	1.40
% Dry Sulfur	0.73	1.10	1.41	1.38	1.82	0.79	0.93
% Oxygen	6.86	8.97	6.31	4.07	1.97	9.63	8.11

Proximate Analysis (Dry Basis)							
% Dry Ash	24.04	15.68	16.69	6.64	10.32	10.52	9.58
% Dry Volatile Matter	29.65	33.11	35.39	22.15	19.00	36.32	37.08
% Fixed Carbon	46.39	51.21	47.87	71.05	70.69	53.16	53.38
Dry BTU/lb	11,049	12,042	12,269	14,376	14,004	12,965	13,285

VANGUARD SOLUTIONS, INC.

CERTIFIED REFERENCE MATERIAL AND REFERENCE SAMPLES ORDER FORM

<u>Catalog Number</u>	<u>Product</u>	<u>Quantity</u>
VS1-001	Coal Sulfur	_____
VS1-021	Coal Sulfur	_____
VS1-031	Coal Sulfur	_____
VS1-041	Coal Sulfur	_____
VS1-051	Coal Sulfur	_____
VS1-061	Coal Sulfur	_____
VS1-071	Coal Sulfur	_____
VS1-081	Coal Sulfur	_____
VS1-091	Coal Sulfur	_____
VS1-101	Coal Sulfur	_____
VS2-002	Coke Sulfur	_____
VS2-022	Coke Sulfur	_____
VS3-003	Coal Proximate	_____
VS3-013	Coal Proximate	_____
VS3-023	Coal Proximate	_____
VS3-033	Coal Proximate	_____
VS3-043	Coal Proximate	_____
VS3-053	Coal Proximate	_____
VS3-063	Coal Proximate	_____
VS3-073	Coal Proximate	_____
VS4-004	Coke Proximate	_____
VS5-005	Lignite Proximate	_____
VS7-001	Coal Ash	_____
VS6-006	Coal Complete	_____
VS6-016	Coal Complete	_____
VS6-026	Coal Complete	_____
VS6-036	Coal Complete	_____
VS6-046	Coal Complete	_____
VS6-056	Coal Complete	_____
VS6-066	Coal Complete	_____

Contact Information:

Date: _____ PO Number: _____

Name: _____ Shipping Address: _____

Company: _____

Email: _____ CC# / Exp.: _____

Phone: _____ Name on Card: _____

Place your order by phone (1-606-325-1970), fax (1-606-325-2689) or email (orders@coalstandards.com)