



CERTIFICATE OF SAMPLING AND ANALYSIS

Vessel: MV CAPE VANYA  
 Port of Loading: Richards Bay Coal Terminal, South Africa  
 Sampling Commenced: 21 July 2018  
 Sampling Completed: 22 July 2018  
 Bill of Lading Date: 22 July 2018  
 Quantity (as per SGS Draft Survey): 164459 Metric Tons  
 Description of goods: South African Steam Coal in Bulk  
 Our Reference: BO 433510

THIS IS TO REPORT that in accordance with instructions received from our Principal, to perform sampling and analysis of the above mentioned shipment, we hereby report the following:

**SAMPLING** MECHANICAL SAMPLING - SGS, operated as per ISO 13909 Part 2. Samples collected throughout the entire loading of the vessel.

Mechanical Sampling System (MSS) was checked by SGS prior to loading and confirmed that the MSS was designed and operated in accordance with ISO 13909 Part 2. Performance Monitoring of the MSS, and collection of extraction ratios, confirmed that the MSS continues to perform as designed. Bias Test data was made available to SGS.

**ANALYSIS** Reported results are based on a calculated weighted average of 20 Sub-lot(s) analysis results using weights and qualities on the same moisture basis, and composite analysis results where applicable. Analysis performed in accordance with ISO Standards.

Nominal Topsize 50 mm

We report the following on weighted average for proximate analysis:

Proximate Analysis	Unit	As Received Basis	Air Dry Basis	Dry Basis
Total Moisture	%	6.81	-----	-----
Moisture in Analysis Sample	%	-----	3.25	-----
Ash	%	19.86	20.62	21.31
Volatile Matter	%	22.10	22.95	23.72
Fixed Carbon	%	51.23	53.18	54.97
Total Sulphur	%	0.77	0.80	0.83
Gross Calorific Value	kcal/kg	5658	5874	6071
Net CV, constant volume	kcal/kg	5466	5696	5905

Ultimate Analysis	Unit	As Received Basis	Air Dry Basis	Dry Basis
Total Carbon	%	59.92	62.21	64.30
Hydrogen (excludes H in moisture)	%	3.14	3.26	3.37
Total Nitrogen	%	1.46	1.52	1.57
Oxygen by diff.(excludes O in moisture)	%	8.03	8.34	8.63
Total Hydrogen (includes H in moisture)	%	3.90	3.62	-----
Oxygen (includes O in moisture)	%	14.08	11.23	-----

Hardgrove Grindability Index	63
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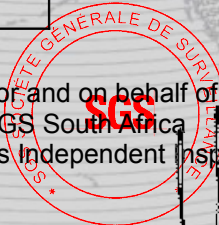


Ash Fusion Temperatures		Reducing Atmosphere
Initial Deformation	Deg.C	1340
Spherical (Softening)	Deg.C	1350
Hemispherical	Deg.C	1370
Flow (Fluid)	Deg.C	1400

Size Distribution (air-dried basis) Square holed Sieves used				
Size Fraction -mm	Size Fraction +mm	Fractional Mass %	Cumulative Mass % Retained	Cumulative Mass % Passed
	50	2.5	2.5	97.5
50	0	97.5	100.0	0.0
Total		100.0		

Issued by SGS South Africa  
31 July 2018

For and on behalf of  
SGS South Africa  
As Independent Inspection Agency at load port




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