

WEIGHTED AVERAGE ANALYTICAL REPORT
SGS Reference: BO 575950 a SANAS Accredited Testing Laboratory, No. T0465".

Vessel or Sample ID: ██████████

Date Issued: 19 August 2022

Location: GLM, MAPUTO PORT, Mozambique

Date(s) Tested: 16-18 August 2022

Cargo: Steam Coal in Bulk

Principal: ██████████

Tonnage: Metric Tons 54300.000

Address:
Sampling Commenced: 09 August 2022

Sampling Completed: 13 August 2022

City, State, Postal:
Bill of Lading Date: 13 August 2022

Country:
Attention:
Sampling description:

Manual sampling was performed by SGS, as per ISO 18283 5.3 during the loading of the vessel. Increments were collected from a freshly exposed surface while the material was in motion, on a systematic, known-mass interval basis, with a fixed-increment mass.

The manual sampling method was agreed with the SGS Principal, as sampling by more reliable methods was not possible. The suitability of this sampling method is defined by the standard.

Analysis performed in accordance with ISO Standards or other International Standards and SGS Procedures.

Analysis marked with: - * denotes SGS accredited test; with # denotes SGS non-accredited test, with ** performed by a Third Party Laboratory - accredited test; with ## performed by Third Party Laboratory - non-accredited test. See METHODS PAGE for more details.

Values are reported to relevant number of significant decimal places. This can result in small rounding differences between Moisture Conversions.

			As-Received Basis (ar)	As-Determined Basis (ad)	Dry Basis (db)	Dry Ash-Free Basis (daf)
Proximate Analysis	Moisture	%	7.2	4.9	----	----
Moisture (Total) *	Ash *	%	17.7	18.1	19.0	----
Moisture (as-determined) *	ISO Volatile Matter *	%	23.1	23.7	24.9	30.8
	Fixed Carbon (calculation by difference)	%	52.0	53.3	56.1	69.2
	Total Sulfur *	%	0.61	0.63	0.66	0.82

Gross Calorific Value *	kcal/kg	5749	5891	6195	7651
ISO 1928	Net CV, constant volume kcal/kg	5577	5729	6052	-----

NCV(v) requires H analysis

Ultimate Analysis			As-Received Basis (ar)	As-Determined Basis (ad)	Dry Basis (db)	Dry Ash-Free Basis (daf)
Moisture (Total) *	Moisture (as-determined) *					
	Total Carbon *	%	60.4	61.9	65.1	80.4
	Total Hydrogen (includes H in moisture) *	%	3.50	3.31	2.90	3.58
	Total Nitrogen *	%	1.33	1.36	1.43	1.77
	Total Sulfur *	%	0.61	0.63	0.66	0.82
	Ash *	%	17.7	18.1	19.0	----
	Oxygen by diff.(includes O in moisture)	%	16.46	14.70	10.91	13.43
	Total	%	100.00	100.00	100.00	100.00
	Moisture	%	(7.2)	(4.9)	-----	-----
	Hydrogen (excludes H in moisture)	%	2.69	2.76	<i>DB & DAF H & O values exclude H & O in moisture</i>	
	Oxygen (excludes O in moisture)	%	10.07	10.35		

Hardgrove Grindability Index *

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Size Distribution A. (air-dried basis)

Square holed Sieves used.

Size Fraction		Fractional Mass %	Cumulative Mass % Retained	Cumulative Mass % Passed
-mm	+mm			
	50	6.2	6.2	93.8
50	20	37.0	43.2	56.8
20	2	45.5	88.7	11.3
2	0.5	7.8	96.5	3.5
0.5	0	3.5	100.0	0.0
Total		100.0		

Ash Fusion Temperatures *

		Reducing
Initial Deformation	Degree C.	1490
Spherical (Softening)	Degree C.	>1500
Hemispherical	Degree C.	>1500
Flow (Fluid)	Degree C.	>1500

Major and Minor Elements, in Ash (Dry Basis)

The Results of an ash constituent analysis do not necessarily total 100.0 %

SiO ₂	%	54.6
Al ₂ O ₃	%	27.1
Fe ₂ O ₃	%	3.93
CaO	%	5.1
MgO	%	1.08
Na ₂ O	%	0.11
K ₂ O	%	0.6
TiO ₂	%	1.6
Mn ₃ O ₄	%	0.035
P ₂ O ₅	%	0.55
SO ₃	%	4.78
Total	%	99.5

Signed and dated

RICHARDS BAY

19 August 2022

For and on behalf of

SGS South Africa

SGS South Africa

Minerals Services Marine Services Park, Newark Road, Port of Richards Bay

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