Certificate N°: 2005280686

CERTIFICATE OF SAMPLING AND ANALYSIS

Reference:

Vessel:	MV ALAM MUTIARA
Stowage:	Holds 1, 3, and 5
Bill of Lading Date:	19 May 2021
Shipper's ID – Cargo Description:	38241.752 Metric Tons of Quinwood Coking Coal
Loadport:	Pier IX, Newport News, Virginia, USA
Disport:	Any Ukrainian Black Sea Port (s)
Date of Inspection:	18 May 2020 through 19 May 2020
SGS Reference Number:	252-2003297

THIS IS TO REPORT that in accordance with instructions received from our Principal, Trafigura Pte. Ltd., to perform weight determination by means of draft survey of the above mentioned shipment, we hereby report the following to perform sampling and analysis of the above mentioned shipment, we hereby report the following.

Sampling: MECHANICAL SAMPLING - THIRD PARTY OBSERVED BY SGS, operated as per ISO 13909 Part 2. Samples collected throughout the entire loading/discharge of the vessel. Samples were submitted to SGS for analysis. Sub-lots weights used in the calculation of the weighted average were supplied by the Third Party.
The sample(s), to which the findings recorded herein (the "FINDINGS") relate, was (were) drawn and / or provided by the Client or a third party acting on Client's directions. The Findings constitute no warranty of the sample's representativity of all the goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is /are said to be extracted.

Analysis: Four (4) sub-lot samples were analysed by SGS in accordance with ASTM and ISO Standard Methods.

We report the following weighted average.

	Test Method	As Received	Air Dried	Dry	Dry Ash-Free	
Total Moisture	ISO 589	9.92	1.56	-----	-----	%
Ash	ISO 1171	6.43	7.03	7.14	-----	%
Volatile Matter	ISO 562	25.14	27.47	27.90	30.05	%
Fixed Carbon	By Difference	58.51	63.94	64.96	69.95	%
Sulphur	ISO 19579	0.88	0.96	0.97	1.05	%
CSN (air dried)	ISO 501		7-1/2	FSI unit		
Oxidation Index	ASTM D 5263		93	%T		

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Gieseler Plastometer	ISO 10329		
Initial Softening Temperature		408	ºC
Max Fluidity Temperature		447	ºC
Solidification Temperature		477	ºC
Plastic Range		69	ºC
Max Fluidity		485	DDPM
Date Tested		21 May 2020	
Plastometric Shrinkage (X)	GB/T 479	26.0	mm
Maximum Plastometric Layer Thickness (Y)	GB/T 479	17.5	mm
Coke Reactivity Index (CRI)	Calculated	37.4	%
Coke Strength after Reaction (CSR)	Calculated	51.1	%
Arnu Dilatometer	ASTM D 5515		
Initial Softening Temperature		380	ºC
Max Contraction Temperature		420	ºC
Max Dilatation Temperature		468	ºC
Max Contraction		-27	%
Max Dilatation		74	%
Date Tested		21 May 2021	
Fusion Temperature of Ash	ISO 540	Reducing	
Initial Deformation Temperature		1427	ºC
Softening Temperature		>1482	ºC
Hemispherical Temperature		>1482	ºC
Fluid Temperature		>1482	ºC
Phosphorous Pentoxide in coal, dry basis	ISO 622	0.029	%

Petrographic Analysis	Test Method	Result	UOM
Vitrinite Type V9	ASTM D 2798	7.1	%
Vitrinite Type V10	ASTM D 2798	19.0	%
Vitrinite Type V11	ASTM D 2798	25.4	%
Vitrinite Type V12	ASTM D 2798	14.1	%
Vitrinite Type V13	ASTM D 2798	4.9	%
Vitrinite	ASTM D 2799	70.5	%
Exinite	ASTM D 2799	2.7	%
Resinite	ASTM D 2799	0.0	%
Semifusinite (Reactive)	US Steel	3.9	%
Total Reactives	US Steel	77.1	%

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Semifusinite (Inert)	US Steel	8.9	%
Micrinite	ASTM D 2799	9.1	%
Fusinite	ASTM D 2799	1.5	%
Mineral Matter	ASTM D 2799	4.3	%
Total Inerts	US Steel	22.9	%
Composition Balance Index	US Steel	0.85	- - - -
Rank Index	US Steel	4.51	- - - -
Mean Maximum Vitrinite Reflectance	ASTM D 2798	1.15	%
Calculated Stability Factor	US Steel	61	%

Signed and dated
27 May 2020

For and on behalf of
SGS North America Inc.
As An Independent Inspection Agency
'At Load Port

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