



**CARSURIN**  
1968

220722.071

## CERTIFICATE OF SAMPLING AND ANALYSIS

Vessel	: <b>MV. ALPHA LEGACY</b>
Quantity	: 79,490 MT
Description of Goods	: STEAM (NON-COKING) COAL OF INDONESIAN ORIGIN IN BULK
Shipper	: PT.KIDECO JAYA AGUNG GRAHA MITRA, 1 <sup>ST</sup> FLOOR JL. JEND. GATOT SUBROTO KAV. 21 JAKARTA 12930, INDONESIA
Consignee	: TO THE ORDER OF PUNJAB NATIONAL BANK, LARGE CORPORATE BRANCH, 3RD FLOOR, RAYALA TOWERS, NO 158 ANNA SALAI, CHENNAI – 600 002, TAMIL NADU, INDIA
Notify	: OPG POWER GENERATION PRIVATE LIMITED, OPG NAGAR, PERIYA OBULAPURAM VILLAGE, NAGARAJA KANDIGAI, MADHARAPAKKAM ROAD, GUMMIDIPONDI – 601201, THIRUVALLUR DISTRICT, TAMIL NADU, INDIA
LC Number	: 03050FLC0000522
LC Date	: MAY 27, 2022
Port of Loading	: ADANG BAY, EAST KALIMANTAN, INDONESIA
Port of Discharge	: ENNORE PORT, INDIA
Loading Dates	: MAY 29 <sup>TH</sup> UP TO JUNE 02 <sup>ND</sup> , 2022

### SAMPLING

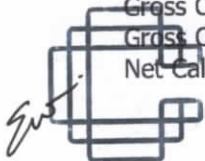
Samples were taken and prepared in accordance with ASTM standards (D2234/D2234M-10, D2013/D2013M-09)

### ANALYSIS

Analysis were performed at PT. Carsurin Tanah Merah Laboratory in accordance with ASTM Standards, the results are as follows :

#### Proximate Analysis

Total Moisture	(Weight %)	D3302-19	35.70	As Received Basis
Inherent Moisture	(Weight %)	D3173-17a	15.10	Air Dried Basis
Ash Content	(Weight %)	D3174-12(2018)e1	3.96	Air Dried Basis
Ash Content	(Weight %)	D3174-12(2018)e1	3.00	As Received Basis
Volatile Matter	(Weight %)	D3175-2020	42.41	Air Dried Basis
Volatile Matter	(Weight %)	D3175-2020	32.12	As Received Basis
Fixed Carbon	(Weight %)	by calculation	38.53	Air Dried Basis
Fixed Carbon	(Weight %)	by calculation	29.18	As Received Basis
Total Sulphur	(Weight %)	D4239-2018e1	0.12	Air Dried Basis
Total Sulphur	(Weight %)	D4239-2018e1	0.09	As Received Basis
Gross Calorific Value	(Kcal/Kg)	D5865-2019	5,478	(Air Dried Basis)
Gross Calorific Value	(Kcal/Kg)	D5865-2019	4,149	(As Received Basis)
Net Calorific Value	(Kcal/Kg)	D5865-2019	3,769	(As Received Basis)



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This report is made and issued by the Company upon the Principal/Applicant's request and the analysis contained therein reflects the Company's findings on the sample(s) submitted by Principal/Applicant and/or sample(s) drawn by the Company at the time and place of performing the inspection/testing only. Company shall not be liable for any changes to the results herein due to effects of weather, transport, storage or other factors outside Company's control. Furthermore, the Company shall not be responsible to any parties on any business, financial and/or legal consequences for any transaction by using this report/analysis. Any unauthorised alteration or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. This document cannot be reproduced except in full, without prior approval of the Company.



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Ultimate Analysis

Carbon	(Weight %)	D5373-16	67.01	Dry Basis
Carbon	(Weight %)	D5373-16	70.29	Dry Ash Free Basis
Hydrogen	(Weight %)	D5373-16	5.16	Dry Basis
Hydrogen	(Weight %)	D5373-16	5.41	Dry Ash Free Basis
Nitrogen	(Weight %)	D5373-16	1.18	Dry Basis
Nitrogen	(Weight %)	D5373-16	1.24	Dry Ash Free Basis
Sulphur	(Weight %)	D4239-2018e1	0.14	Dry Basis
Sulphur	(Weight %)	D4239-2018e1	0.15	Dry Ash Free Basis
Oxygen	(Weight %)	by calculation	21.85	Dry Basis
Oxygen	(Weight %)	by calculation	22.91	Dry Ash Free Basis

<b>Ash Analysis</b>	(Weight %)	D3682-13		
SiO <sub>2</sub>	(Silicon Dioxide)		27.40	Dry Basis
Al <sub>2</sub> O <sub>3</sub>	(Aluminium Oxide)		11.69	Dry Basis
Fe <sub>2</sub> O <sub>3</sub>	(Ferric Oxide)		25.75	Dry Basis
CaO	(Calcium Oxide)		18.20	Dry Basis
MgO	(Magnesium Oxide)		9.17	Dry Basis
Na <sub>2</sub> O	(Sodium Oxide)		0.18	Dry Basis
K <sub>2</sub> O	(Potassium Oxide)		0.62	Dry Basis
TiO <sub>2</sub>	(Titanium Dioxide)		0.66	Dry Basis
SO <sub>3</sub>	(Sulphur Trioxide)		5.69	Dry Basis
P <sub>2</sub> O <sub>5</sub>	(Phosphorus Pentoxide)		0.12	Dry Basis
Mn <sub>3</sub> O <sub>4</sub>	(Manganese)		0.38	Dry Basis
Undetermined			0.14	Dry Basis

Hard Grove Index (HGI) D409/D409M-16 55

<b>Ash Fusion Temperature (°C)</b>	D1857-18		
		<b>Reducing</b>	<b>Oxidizing</b>
Initial Deformation		1,170	1,240
Spherical Temperature		1,180	1,250
Hemispherical Temperature		1,190	1,260
Fluid Temperature		1,200	1,280

<b>Size</b>	(Weight %)	D4749-87 (2019)e1	
51 -100 mm			4.08
0 - 50 mm			95.92
0 - 20 mm			61.20
0 - 2 mm			15.78

Tanjung Merah, June 02nd, 2022

PT. CARSURIN

Elien

Head of Laboratory

Certificate of Sampling and Analysis is Issued at Loading Port

For verification of authenticity of certificate or reports, please contact [coal.sales@carsurin.com](mailto:coal.sales@carsurin.com)



This report is made and issued by the Company upon the Principal/Applicant's request and the analysis contained therein reflects the Company's findings on the sample(s) submitted by Principal/Applicant and/or sample(s) drawn by the Company at the time and place of performing the inspection/testing only. Company shall not be liable for any changes to the results herein due to effects of weather, transport, storage or other factors outside Company's control. Furthermore, the Company shall not be responsible to any parties on any business, financial and/or legal consequences for any transaction by using this report/analysis. Any unauthorised alteration or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. This document cannot be reproduced except in full, without prior approval of the Company.

Certificate of Analysis