



Certificate of Sampling and Analysis

Vessel : Mv. "AP STON"
Cargo (described as) : Steam (Non-Coking) Coal in bulk of Indonesian Origin
Quantity (as per draft Survey) : 57750 Metric Ton
Port of Loading (as furnished) : Tabonto Anchorage, South Kalimantan, Indonesia
Port of Discharge : Ennore Port, India
Dates of sampling : 12.01.14 to 14.01.14
Job File No. : IN/CHN/MIN/201400026

This is to certify that in accordance with the instructions received from OPG Power Generation Pvt. Ltd., Chennai, vide e-mail dated 10.01.14, we attended to the inspection of captioned cargo and report as under :-

SAMPLING Samples were drawn throughout discharge as per ASTM D2234 / ASTM D 2234 - M10 Standards and samples prepared as per ASTM D 2013 Standard. 8 sublots were made covering the above quantity and prepared 4 packets - subplotwise, duly tagged with inspection details and strip sealed with No. IND 001071 to 1110.

In addition to sublots, composite sample prepared covering the entire quantity and made 5/3 packets for quality / HGI, duly tagged with inspection details and sealed with above strip seals.

Sample distribution – subplotwise / composite:

3 Strip sealed samples were forwarded to our in-house laboratories at Chennai, Dhanbad and Bhubaneswar for analysis
1 strip sealed composite sample (# IND 001105) was forwarded to Client on 17.01.14
and

Balance strip sealed samples will be retained by us for a period of two months unless otherwise instructed.



SGS India Private Limited

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SIZE DETERMINATION

Gross samples drawn were subjected to sieve test using square aperture sieves with weighted average result are as under :

0 – 2 mm	19.28 %
2 – 50 mm	69.43 %
50 – 100 mm	10.72 %
Above 100 mm	0.57 %

ANALYSIS : Eight (8) Sub-lot samples were analysed in accordance with ASTM standards.

We report the following weighted average :

Parameters	Test Method	As Received Basis (arb)	Dry Basis (db)	Air Dry Basis (adb)
Total Moisture %	ASTM D 3302:12	33.64	--	--
Inherent Moisture %	ASTM D 3173-11	--	--	11.24
Ash %	ASTM D 3174-11	5.75	8.66	7.69
Volatile Matter %	ASTM D 3175-11	31.33	47.22	41.91
Fixed Carbon %	ASTM D 3172-07a	29.28	44.12	39.16
Sulphur %	ASTM D 3177-07	0.10	0.16	0.14
Gross Calorific Value kcal/kg	ASTM D 5865-11a	4019	6057	5376

Ultimate Analysis (ASTM D 5373:08)	Dry Basis (db)
Carbon %	72.89
Hydrogen (excludes H in moisture) %	3.74
Nitrogen %	0.82
Sulphur %	0.16
Ash %	8.66
Oxygen (by Difference) %	13.73



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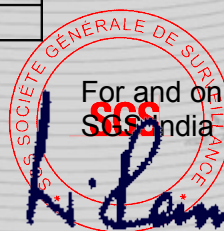
Elemental Ash Analysis, dry basis (ASTM 6349-09)

SiO ₂ (ASTM C 114-11b)	45.67	%
Al ₂ O ₃	19.24	%
Fe ₂ O ₃	25.53	%
CaO	1.73	%
MgO	2.89	%
Na ₂ O	0.25	%
K ₂ O	0.84	%
P ₂ O ₅	0.12	%
TiO ₂	1.15	%
Mn	0.08	%
SO ₃ (ASTM C 114-11b)	2.05	%

Hardgrove Grindability Index (HGI) ASTM D409/D409M-12	65
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Ash Fusion Temperatures (ASTM D 1857/D1857M-04)	Reducing Atmosphere	
Initial Deformation	1235	Deg.C
Spherical (Softening)	1332	Deg.C
Hemispherical	1344	Deg.C
Flow (Fluid)	1356	Deg.C

Signed and Dated
29th January, 2014



For and on behalf of
SGS India Private Limited

H. Ramani



SGS India Private Limited

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