

LAMPIRAN

Lampiran 1

Tahapan preparasi sampel batubara



1. Sampel batubara



2. Crushing



3. Rotary Sample Divider



4. Rotary Sample Divider



5. Dry Shed



6. Raymond Mill



7. Raymond Mill



Lampiran 2

Tahapan analisis proksimat (*inherent moisture*)



4. Dish Sampel



5. Furnace Moisture



6. Desikator



1. Sampel Batubara

2. Timbangan Analitik

3. Penimbangan

Lampiran 3

Tahapan proksimat (*ash content*)



1. Sampel Batubara



2. Penimbangan



3. Dish Sampel



4. Furnace Ash



5. Desikator

Lampiran 4

Tahapan proksimat (*volatile matter*)



1. Sampel Batubara



2. Penimbangan



3. Dish Sampel

4. Furnace Volatile



5. Desikator

Lampiran 5

Surat keterangan



PT. GEOSERVICES

GEOLOGICAL CONSULTANS - SURVEYING - GEOPHYSICS-
GEOCHEMICAL, MINERALOGICAL & PALAEONTOLOGICAL
LABORATORIES

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E-mail : smdoff@geoservices.co.id

SURAT KETERANGAN

No. 31/EKS/GS-SMR/XI/2025

Dengan surat ini kami dari PT. Geoservices Samarinda, menerangkan bahwa :

Nama : Bima Sakti
Tempat, Tanggal Lahir : Tanjung Jone, 07 Agustus 2003
NIM : 220620999
Perguruan Tinggi : Universitas Kutai Kartanegara

Adalah Mahasiswa yang telah melaksanakan Kegiatan Penelitian Skripsi dalam kurun waktu 1 September 2025 sampai dengan 31 Oktober 2025 pada tahapan "Preparasi dan Uji Laboratorium Batubara di PT. Geoservices Samarinda".

Demikian surat keterangan ini dibuat dengan sebenarnya untuk dapat dipergunakan sebagaimana mestinya.

Samarinda, 24 November 2025
Quality PT. Geoservices Samarinda

PT. GEOSERVICES

Niko Sudrajat, S.T

Lampiran 6

Form hasil analisis proksimat Batuah 1

Job No : SPS 220620999
Date : 9 – 11 - 2025

Oven No :
Furnace No :

Work Shift : (Day) – (Night) Balance No : E
Method Std : (ISO) / (ASTM) / (GB/T) Factor Corr Balance : 0.0000

Moisture in the analysis sample

Lab. Sample ID	BATUAH 1	
Dish No.	1	2
Weight of dish +lid + sample before heating (m2) gram	15,3720	13,5911
Weight of dish +lid before heating (m1) gram	14,3713	12,5901
Weight of dish +lid +sample after heating (m3) gram	15,2120	13,4306
%Moisture in the analysis sample = $(m2 - m3) \times 100 / (m2 - m1)$	15,99	16,03
% Moisture in the analysis sample Mean	16,01	

Ash Content

Lab. Sample ID	BATUAH 1	
Dish No.	3	4
Weight of dish +lid + sample before heating (m2) gram	16,3545	20,2068
Weight of dish +lid before heating (m1) gram	15,3554	19,2078
Weight of dish +lid +residu after heating (m3) gram	15,3935	19,2455
Ash Content % = $\frac{(m3 - m1) \times 100}{(m2 - m1)}$	3,81	3,77
Avarage Ash Content (%) Mean	3,79	

Volatile Matter

Lab. Sample ID	BATUAH 1	
Crucible No.	1	2
Weight of dish +lid + sample before heating (m2) gram	15,3508	13,2068
Weight of dish +lid before heating (m1) gram	14,3506	12,9415
Weight of dish +lid +residu after heating (m3) gram	15,3935	13,3845
Berat yang hilang = $\frac{(m2 - m3) \times 100}{(m2 - m1)}$	55,57	55,68
Mean	55,63	
Volatile Matter %= berat yang hilang %- Moisture %	39,62	

FIXED CARBON	BATUAH 1
(100 - %Moisture - %Ash - %Volatile Matter)	40,59

Lampiran 7

Form hasil analisis proksimat Batuah 2

Moisture in the analysis sample

Lab. Sample ID	BATUAH 2	
Dish No.	1	2
Weight of dish +lid + sample before heating (m2) gram	11,9862	14,3495
Weight of dish +lid before heating (m1) gram	10,9862	13,3490
Weight of dish +lid +sample after heating (m3) gram	11,7631	14,1260
%Moisture in the analysis sample = $(m2 - m3) \times 100 / (m2 - m1)$	22,31	22,34
% Moisture in the analysis sample Mean	22,33	

Ash Content

Lab. Sample ID	BATUAH 2	
Dish No.	3	4
Weight of dish +lid + sample before heating (m2) gram	21,6517	17,9744
Weight of dish +lid before heating (m1) gram	20,6517	16,9736
Weight of dish +lid +residu after heating (m3) gram	20,6842	17,0059
Ash Content % = $\frac{(m3 - m1) \times 100}{(m2 - m1)}$	3,29	3,23
Ash Content (%) Mean	3,26	

Volatile Matter

Lab. Sample ID	BATUAH 2	
Crucible No.	1	2
Weight of dish +lid + sample before heating (m2)	14,7047	14,5654
Weight of dish +lid before heating (m1)	13,7037	13,5650
Weight of dish +lid +residu after heating (m3)	14,1210	13,9829
Berat yang hilang $= \frac{(m2 - m3) \times 100}{(m2 - m1)}$	58,43	58,23
Average	58,33	
Volatile Matter %= berat yang hilang %- Moisture %	36,01	
FIXED CARBON	BATUAH 2	
(100 - %Moisture -%Ash-%Volatile Matter)	38,41 %	

Lampiran 8

Form hasil analisis proksimat Kutai Lama

Moisture in the analysis sample

Lab. Sample ID	KUTAI LAMA	
Dish No.	1	2
Weight of dish +lid + sample before heating (m2)	13,6430	13,2860
Weight of dish +lid before heating (m1)	12,6432	12,2863
Weight of dish +lid +sample after heating (m3)	13,4232	13,0667
%Moisture in the analysis sample = $(m_2 - m_3) \times 100 / (m_2 - m_1)$	21,96	21,94
% Moisture in the analysis sample Average	21,95	

Ash Content

Lab. Sample ID	KUTAI LAMA	
Dish No.	3	4
Weight of dish +lid + sample before heating (m2)	16,7401	18,4709
Weight of dish +lid before heating (m1)	15,7401	17,4709
Weight of dish +lid +residu after heating (m3)	15,7930	17,5232
Ash Content % = $\frac{(m_3 - m_1) \times 100}{(m_2 - m_1)}$	5,29	5,24
Avarage Ash Content (%)	5.27	

Volatile Matter

Lab. Sample ID	KUTAI LAMA	
Crucible No.	1	2
Weight of dish +lid + sample before heating (m2)	18,8055	13,8891
Weight of dish +lid before heating (m1)	17,6050	12,8894
Weight of dish +lid +residu after heating (m3)	18,0160	13,3003
Berat yang hilang = $\frac{(m_2 - m_3) \times 100}{(m_2 - m_1)}$	58,92	58,89
Average	58,90	
Volatile Matter %= berat yang hilang %- Moisture %	36,94	

FIXED CARBON	KUTAI LAMA
(100 - %Moisture -%Ash-%Volatile Matter)	35,84 %

Lampiran 9

Sertifikat hasil penelitian



PT. GEOSERVICES
COAL LABORATORY

**SERTIFIKAT
PENGALAMAN PRAKTEK KERJA INDUSTRI**

Nomor : 95/CERT.PI/GS-SMR/2025

Pimpinan / Manager PT. Geoservices, Laboratorium Batubara Cabang Samarinda
dengan ini menerangkan bahwa :

BIMA SAKTI

Lahir pada tanggal : Tanjung Jone, 07 Agustus 2003
Mahasiswa (I) pada : Universitas Kutai Kartanegara
Program Studi / Jurusan : Teknik Pertambangan
Nomor Induk : 220620999

Telah mengikuti Praktek Kerja Lapangan pada :

PT. GEOSERVICES. – LABORATORIUM BATUBARA CABANG SAMARINDA
Jl. HM. Kadrie Oening No.94 RT. 18 Samarinda – Kalimantan Timur

Selama ± 2 (Dua) hari/bulan, dari tanggal 01 September 2025 S/D 31 Oktober 2025,
dengan hasil :

SANGAT MEMUASKAN

Daftar Penilaian tercantum dibalik halaman ini.
Samarinda, 24 November 2025

Quality PT. Geoservices Samarinda


PT. GEOSERVICES
Niko Sudrajat, S.T