

ARROWFIELD Co, Ltd

**INDONESIAN WOOD CHIPS
TO THE WORLD**

• **WOOD CHIPS FOR FUEL**

ARROWFIELD Co., Ltd

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1. INTRODUCTION

Although the price is inexpensive, Wood chips for fuel have relatively high calorific value and now it is attracting attention as a carbon-free biomass fuel. In the process of wood chips (for fuels) production in Indonesia, moisture is forcibly removed using a warm air dryer, and the dried chips become the finished product.

Currently, our company has concluded a business agreement with a major wood chip manufacturer in Indonesia, and we are developing our business together

- ① Product : Wood chips for fuel
- ② Origin : Indonesia
- ③ Loading Port : Port of Tanjung Emas, Semarang, Indonesia
- ④ Moisture : 25% maximum
- ⑤ Calorific value : 3500~4200 kcal/kg
- ⑥ Ash : 2% maximum
- ⑦ Sulphur : 0.5% maximum
- ⑧ Production ability : 3,000MT/Month (can be increased to 10,000 ton by working double shift and new chipper that will be arrived on February)
- ⑨ Factory area : 1.8 Ha (18,000 m²)
- ⑩ Storage area : 8,000 m² (with concrete and roof)
- ⑪ Shipping : Container (Packing adjustment to customer's request)
- ⑫ Incoterms : FOB/CIF/CFR
- ⑬ Payment : L/C at Sight



PURPOSE	TREE SPECIES	PRODUCTION PROCESS
For fuel	Tropical Fruits Trees	Material Preparation⇒Chip⇒Filtering (fine garbage, dust, etc)⇒Drying process⇒Finished products
	Gliricidea	
	Mahogany	
	Pine	
	Others	



2. SAMPLE OF WOOD CHIPS FOR FUEL (Miscellaneous trees)





3. THE PROCESS OF THE PRODUCTION



① Logs



② Chip Processing



③ Filtering

(Removing fine garbage, dust, and small-sized chips)





④ Force drying process



⑤ Finished



GLIRICIDEA

Lampiran sertifikat Nomor : 1136A/LBB/X/2022

HASIL ANALISIS / ANALYSIS RESULT :

ANALYSIS PARAMETERS	Sample Marks	Unit	Basis
	No. Lab 6273/22		
	Gliricidea Wood No. 2A		
TOTAL MOISTURE	18,08	%	ar
PROXIMATE :			
MOISTURE IN AIR DRIED	8,51	%	adb
ASH	1,38	%	adb
VOLATILE MATTER	73,24	%	adb
FIXED CARBON	16,87	%	adb
SULFUR	0,16	%	adb
GROSS CALORIC VALUE	4.164	cal/g	adb
GROSS CALORIC VALUE	3.728	cal/g	ar

Laboratorium Batubara,



Astuti Rahayu S.Si
NIP. 19730923 199403 2 002

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CERTIFICATE OF ANALYSIS WITH 11% MOISTURE

F-LP-413.3 Rev.0

Lampiran Sertifikat Nomor : 0737/LBB/VIII/2023

HASIL ANALISIS / ANALYSIS RESULT :

ANALYSIS PARAMETERS	Sample Marks	Unit	Basis	STANDARD METHODE MENGACU KE
	No. Lab.4273/23			
	WOOD CHIP			
PROXIMATE :				
MOISTURE IN AIR DRIED	10,48	%	adb	ASTM D3173/3173M-17a
ASH	1,20	%	adb	ASTM D3174-12 (2018) ^{el}
VOLATILE MATTER	73,24	%	adb	ASTM D3175-20
FIXED CARBON	15,08	%	adb	ASTM D3172-2021 ^{el}
SULFUR	0,070	%	adb	ASTM D4239-18 ^{el} (Methode A)
GROSS CALORIFIC VALUE	4.083	cal/g	adb	ASTM D5865/5865M-19

ANALYSIS PARAMETERS	Sample Marks	Unit	Basis	STANDARD METHODE MENGACU KE
	No. Lab.4273/23			
	WOOD CHIP			
TOTAL MOISTURE	10,48*	%	ar	ASTM D3302/D3302M-19
ASH	1,20	%	ar	ASTM D3174-12 (2018) ^{el}
VOLATILE MATTER	73,24	%	ar	ASTM D3175-20
FIXED CARBON	15,08	%	ar	ASTM D3172-2021 ^{el}
SULFUR	0,070	%	ar	ASTM D4239-18 ^{el} (Methode A)
GROSS CALORIFIC VALUE	4.083	cal/g	ar	ASTM D5865/5865M-19

(*) = Nilai Total Moisture sama dengan Nilai Moisture In Air Dried , karena contoh dalam kondisi kering (ADL=0).

Laboratorium Batubara,


 Astuti Rahayu, S.Si

*Notes: It was tested on August 4, 2023



ARROWFIELD Co., Ltd.

株式会社アローフィールド

CERTIFICATE OF ANALYSIS WITH HIGHER MOISTURE

F-LP-413.3 Rev.0

Lampiran Sertifikat Nomor : 0760/LBB/VIII/2023

HASIL ANALISIS / ANALYSIS RESULT :

ANALYSIS PARAMETERS	Sample Marks		Unit	Basis	STANDARD METHODE MENGACU KE
	No. Lab.4272/23				
	WOOD CHIP (FRESH CUT)				
PROXIMATE :					
MOISTURE IN AIR DRIED SAMPLE	23,44	%	adb		ASTM D3173/3173M-17a
ASH	0,92	%	adb		ASTM D3174-12 (2018) ^{e1}
VOLATILE MATTER	63,47	%	adb		ASTM D3175-20
FIXED CARBON	12,17	%	adb		ASTM D3172-2021 ^{e1}
SULFUR	0,055	%	adb		ASTM D4239-18 ^{e1} (Methode A)
GROSS CALORIFIC VALUE	3.528	cal/g	adb		ASTM D5865/5865M-19

*Notes: It was
tested on August
4, 2023

ANALYSIS PARAMETERS	Sample Marks		Unit	Basis	STANDARD METHODE MENGACU KE
	No. Lab.4272/23				
	WOOD CHIP (FRESH CUT)				
TOTAL MOISTURE	29,53	%	ar		ASTM D3302/D3302M-19
ASH	0,85	%	ar		ASTM D3174-12 (2018) ^{e1}
VOLATILE MATTER	58,42	%	ar		ASTM D3175-20
FIXED CARBON	11,20	%	ar		ASTM D3172-2021 ^{e1}
SULFUR	0,051	%	ar		ASTM D4239-18 ^{e1} (Methode A)
GROSS CALORIFIC VALUE	3.247	cal/g	ar		ASTM D5865/5865M-19

Lampiran Sertifikat Nomor : 1464/LBB/XII/2023

HASIL ANALISIS / ANALYSIS RESULT :

ANALYSIS PARAMETERS	Sample Marks		Unit	Basis	STANDARD METHODE MENGACU KE
	No. Lab. 8019/23				
	Woodchips				
TOTAL MOISTURE	36,55	%	ar		ASTM D 3302/D3302M-22
PROXIMATE :					
MOISTURE IN AIR DRIED	11,21	%	adb		ASTM D 3173/D3173M-17a
ASH	0,79	%	adb		ASTM D 3174-12 (2018) ^{e1}
VOLATILE MATTER	74,12	%	adb		ASTM D 3175-20
FIXED CARBON	13,88	%	adb		ASTM D 3172-2021 ^{e1}
ULTIMATE					
CARBON	44,87	%	adb		ASTM D5373-21 (Method A)
HYDROGEN	6,49	%	adb		
NITROGEN	0,31	%	adb		
TOTAL SULFUR	0,012	%	adb		ASTM D4239-18 ^{e1} (Method A)
OXYGEN	47,53	%	adb		ASTM D 3176-15
GROSS CALORIFIC VALUE	4.097	cal/g	adb		ASTM D5865/5865M-19
CHLORINE	0,099	%	adb		ISO D587-2020 (E)

*Notes: It
was tested on
December 28,
2023



5. INQUIRY

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**Please feel free to contact us if you have any questions
or unclear points.**

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