

**DIN CERTCO GMBH**  
**Monsieur Lamine BADJI**  
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ALLEMAGNE

## ANALYTICAL REPORT

Analytical Report Number : AR-24-EM-003475-01    Version of : 04/03/2024

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Batch N° : 24Q001138

Reception Date : 12/02/2024

Batch Reference :

Order Reference : PO 1952536 \_ Procedure n° 3380673

Sampl	Matrix	Sample reference	Observations
001	Biofuel, solid	AEB 1 + AEB 2	Client

### Samples preservation

The samples will be stored 4 weeks after the receipt at the laboratory.

**EUROFINS ANALYSES DES MATERIAUX ET COMBUSTIBLES France SAS**

20 rue du Kochersberg

67700 Saverne

SAS au capital de 115 750 €

APE 7120B RCS SAVERNE 529294100

TVA FR72529294100

Tél 03 88 021 562 - fax 03 88 916 531

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ACCREDITATION  
N°1-6313  
Scope available on  
[www.cofrac.fr](http://www.cofrac.fr)





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Sample n°                    **24Q001138-001**

Référence : AEB 1 + AEB 2

Sampling date :

Start of analysis :            14/02/2024

Sample observation : Customer: SAS Alpes Energie Bois

### Calorific value

		Result	Unit	Limit
<b>FHAE4 : Gross calorific value</b> Test done on Saverne COFRAC TESTING 1-6313				
Combustion [Combustion / Calorimetry] - NF EN ISO 18125				
Gross calorific value as received	*	19128	kJ/kg Raw Product	
<b>FHAE5 : Net calorific value</b> Test done on Saverne COFRAC TESTING 1-6313				
Calculation - NF EN ISO 18125				
Net calorific value dry basis	*	19138	kJ/kg dry matter	
Net calorific value as received	*	17793	kJ/kg Raw Product	16500<= x <= 30000

### Physical properties

		Result	Unit	Limit
<b>FHAE6 : Level of fines</b> Test done on Saverne COFRAC TESTING 1-6313				
Mechanical - NF EN ISO 18846				
Level of fines	*	0.30	%	<= 0.5
Mass	*	15355.2	g	
<b>FHOKK : Bulk density for samples ≤ 12mm</b> Test done on Saverne COFRAC TESTING 1-6313				
Volumetry - NF EN ISO 17828				
volume of the container	*	4.9	l	
Bulk density	*	660	kg/m³	600<= x <= 750
<b>FD00P : Dimensions pellets solid biofuels</b> Test done on Saverne COFRAC TESTING 1-6313				
Mechanical - NF EN ISO 17829				
Length	*	15	mm	3.15<= x <=40
Diameter	*	5.2	mm	5<= x <= 9
Lower length at 3,15 mm	*	0.0	%	
Share of pellets with a length < 10mm	*	1.0	%	
Lenght between 3.15 to 40 mm	*	100	%	99<= x <=1000
Lenght between 40 to 45 mm	*	0.0	%	
Lenght > 45 mm	*	0.0	%	
Class	*	D06		
Standard deviation length	*	3.2	mm	
Standard deviation diameter	*	0.0	mm	

### Subcontracting | Eurofins Umwelt Ost GmbH

		Result	Unit	Limit
<b>FR0DY : Mechanical durability in pellets [solid biofuels] %</b> Test subcontracted to Eurofins				
Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkkS D-PL-14081-01-00				
Mechanical - DIN EN ISO 17831-1: 2016-05				
	*	98.7	% (w/w)	98<= x <= 100

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 Sample n°                    **24Q001138-001**

Référence : AEB 1 + AEB 2

Sampling date :

Start of analysis :            14/02/2024

Sample observation : Customer: SAS Alpes Energie Bois

### Subcontracting | Eurofins Umwelt Ost GmbH

	Result	Unit	Limit
<b>FR03D : Arsenic [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	< 0.8	mg/kg	x <= 1
<b>FR03F : Lead [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	< 2	mg/kg	x <= 10
<b>FR03G : Cadmium [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	< 0.2	mg/kg	x <= 0.5
<b>FR03M : Copper [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	< 1	mg/kg	x <= 10
<b>FR03I : Chromium [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	< 1	mg/kg	x <= 10
<b>FR03S : Nickel [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	< 1	mg/kg	x <= 10
<b>FR03Y : Zinc [solid biofuels] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 ICP-MS - DIN EN ISO 17294-2 (E29): 2017-01	6	mg/kg	x <= 100
<b>FR04A : Mercury [solid biofuels] [AAS] mg/kg ds</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 CV-AAS - DIN EN ISO 12846 (E12): 2012-08	< 0.05	mg/kg	x <= 0.1
<b>FROME : Ash melting behaviour 815°C (oxidizing) [solid biofuels]</b> Test subcontracted to Eurofins Umwelt Ost GmbH (Freiberg) DIN EN ISO/IEC 17025:2018 DAkKS D-PL-14081-01-00 Thermomicroscopy - DIN EN ISO 21404: 2020-06			
Shrinkage start temp SST	1080	°C	
Deformation temp DT	1410	°C	1200<= x <=2000
Hemisphere temp HT	> 1500	°C	
Flow temp FT	> 1500	°C	

Criterias from : DINplus version 2021-11 \_ Norme 17225-2

**Conclusion / Declaration of conformity (Not covered by accreditation) :**

L'échantillon analysé est satisfaisant pour les critères étudiés. Pour déclarer, ou non, la conformité à la spécification, il n'a pas été tenu explicitement compte de l'incertitude associée au résultat.

Reproduction of this document is authorized only in its integral form. It contains 5 page(s). This report is only related to the tested objects. Any results and conclusions apply to the sample as received.

Only results identified by \* are covered by an accreditation delivered by a organization having signed international recognition agreements.

All changes are identified by bold, italics and underlining when a new version of the report is issued.

Uncertainty has not been taken into account when declaring conformity with the specification and quality criteria. Results that do not comply with the quality limits or reference are indicated by a black circle ● .

The results preceded by the sign < correspond to the limits of quantification, they are the responsibility of the laboratory and depend on the matrix.

All elements of traceability and uncertainty (determined with k = 2) are available on request.

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Caroline Gross  
Analytical Service Manager