



Twin Ports Testing, Inc.
 1301 North 3rd Street
 Superior, WI 54880
 p: 715-392-7114
 p: 800-373-2562
 f: 715-392-7163
 www.twinportstesting.com

Report No: USR:W222-0616-01
Issue No: 1

Certificate of Analysis

Clients: FIBER ENERGY PRODUCTS AR, LLC
 288 Industrial Drive
 Mountain View, AR 72560

 European Technical Trading BV
 Boeiebos 24, 9031 Drongen
 Belgium

Signed: *Katy Jahr*
 Chemistry Lab Supervisor
 Date of Issue: 9/29/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details
Sample Log No: W222-0616-01 **Sample Date:**
Sample Designation: 40# Fuel Pellets **Sample Time:**
Sample Recognized As: Biomass Pellets **Arrival Date:** 9/19/2022

	METHOD	UNITS	MOISTURE FREE	AS RECEIVED
Moisture Total	ISO 18134-1	wt.%		4.92
Ash	ISO 18122	wt.%	0.65	0.62
Volatile Matter	ISO 18123	wt.%	83.92	79.79
Sulfur	ISO 16994	wt.%	0.01	0.01
Gross Cal. Value at Const. Volume	ISO 18125	MJ/kg	19.65	18.69
Net Cal. Value at Const. Volume	ISO 18125	MJ/kg		17.41
Net Cal. Value at Const. Pressure	ISO 18125	MJ/kg	18.48	17.45
Carbon	ISO 16948	wt.%	49.80	47.35
Hydrogen	ISO 16948	wt.%	5.95	5.66
Nitrogen	ISO 16948	wt.%	< 0.15	< 0.14
Oxygen	ISO 16948	wt.%		
Chlorine	ISO 16994	wt.%	<0.01	<0.01
Bulk density	ISO 17828	kg/m ³		678
Mechanical durability	ISO 17831-1			98.2
Average Pellet Length	ISO 17829	mm		19.96
Average Pellet Diameter	ISO 17829	mm		6.52
Pellet Length > 40 mm	ISO 17829	wt.%		0.0
Pellet Length > 45 mm	ISO 17829	wt.%		0.0
Fines less than 3.15 mm	ISO 18846	wt.%		0.2

Comments:



Accreditation #60243


Results issued on this report only reflect the analysis of the sample submitted. Our reports and letters are for the exclusive and confidential use of our clients and may not be reproduced, except in their entirety, without the written approval of Twin Ports Testing. Twin Ports Testing Laboratory is accredited to the ISO/IEC 17025:2017 standard by PJLA.

Report No: USR:W222-0616-01
Issue No: 1
This report replaces all previous issues

Analytical Test Report

Clients: FIBER ENERGY PRODUCTS AR, LLC
 288 Industrial Drive
 Mountain View AR 72560

 European Technical Trading BV
 Boeiebos 24, 9031 Drongen
 Belgium

Signed: 
 Katy Jahr
 Chemistry Lab Supervisor
 Date of Issue: 9/28/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Sample Log No:	W222-0616-01	Sample Date:	
Sample Designation:	40# Fuel Pellets	Sample Time:	
Sample Recognized as:	Biomass Pellets	Arrival Date:	9/19/2022

Test Results

ASH FUSION - ISO 21404

Oxidizing Atmosphere

Shrinkage Starting Temp.	1310 °C
Deformation Temp.	1380 °C
Hemispherical Temp.	1435 °C
Flow Temp.	1440 °C

Comments



Accreditation #60243

Results issued on this report only reflect the analysis of the sample submitted. Our reports and letters are for the exclusive and confidential use of our clients and may not be reproduced, except in their entirety, without the written approval of Twin Ports Testing. Twin Ports Testing Laboratory is accredited to the ISO/IEC 17025:2017 standard by PJLA.