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**NIPPON KAIJI KENTEI KYOKAI**  
LICENSED BY THE JAPANESE GOVERNMENT



**NKKK**  
FOUNDED IN 1913

**INTERNATIONAL INSPECTION & SURVEYING**  
INSPECTIONS REQUIRED BY REGULATIONS FOR  
DANGEROUS GOODS, SOLID BULK SUBSTANCES AND  
NOXIOUS LIQUID SUBSTANCES  
MARINE SURVEY AND CARGO INSPECTION  
MARINE CONSULTANT  
NON-MARINE ADJUSTING  
PETROLEUM AND CHEMICAL INSPECTION  
LIQUEFIED GAS INSPECTION  
CHEMICAL ANALYSIS  
TANK CALIBRATION  
SAMPLING AND TESTING  
CARGO WEIGHING AND MEASURING

**ORIGINAL**

(Ref. OS)

Analysis Certificate

**YOKOHAMA**

Date : Aug. 2, 2019

Certificate No. MCO 147.2/19

**THIS IS TO CERTIFY THAT** the under mentioned sample was analyzed by us with the following results:

Applicant : DAICHU CORPORATION  
Description of Sample : Wood Pellet (000 PFK Energya (Krasnoyarsk))  
Sample submitted by : The applicant  
Remarks : None

Result of Analysis:

1. Moisture	As received basis (%)
Total Moisture	6.6

2. Proximate Analysis	Air dried basis (%)
Inherent Moisture	9.2
Ash	0.6

3. Calorific Value	As received basis	Air dried basis	Dry basis
Gross Calorific Value (J/g)		18,330	
Net Calorific Value (J/g)	17,520	16,970	18,920
Gross Calorific Value (cal/g)		4,380	
Net Calorific Value (cal/g)	4,190	4,050	4,520

4. Ultimate Analysis	Dry basis (%)
Hydrogen	6.15
Nitrogen	0.08
Total Sulfur	0.01

5. Trace element	Dry basis (%)	Dry basis (mg/kg)
Total Cl (Total Chlorine)	0.007	
As (Arsenic)		Less than 0.1
Pb (Lead)	Less than 0.001	
Total Hg (Total Mercury)		Less than 0.01
Cd (Cadmium)	Less than 0.001	
Na (Sodium)	0.004	
K (Potassium)	0.079	
Cu (Copper)	Less than 0.001	
Zn (Zinc)	0.001	
Total Cr (Total Chromium)	Less than 0.001	

This Certificate/Report contains measures to prevent forgery. If you have any question regarding the contents, please refer to the Original of the Certificate/Report.  
This survey/inspection has been conducted under the quality management systems conforming to ISO9001/JISQ9001 registered by ClassNK, which is accredited by JAB(Japan Accreditation Board).

6. Bulk Density	As received basis (g/cm <sup>3</sup> )
Bulk Density (Tapping)	0.67

7. Fines rate	As received basis (%)
Fines rate	0.4

8. Sieve Test (particle size inside the pellets)*	Result (%)
+ 3.15 mm	0.2
- 3.15 mm	99.8

9. Sieve Test (particle size inside the pellets)*	Result (%)
+ 2 mm	1.9
- 2 mm	98.1

10. Sieve Test (particle size inside the pellets)*	Result (%)
+ 1 mm	13.6
- 1 mm	86.4

\*We soaked the pellets in the water and measured the particle size test after drying them.

( Last Item )

For all enquiries, Please call : 045-772-1521



NIPPON KAIJI KENTEI KYOKAI

  
T. SAITO, PRESIDENT