

Analytical Results		
Property	Value	U _{95%}
% Ash	48.91	0.42
% Volatile Matter	12.61	0.48
% Fixed Carbon	38.43	0.65
% Carbon	39.83	0.63
% Hydrogen	1.82	0.15
% Nitrogen	0.40	0.07
% Sulphur	6.20	0.22
% Chlorine	0.0283	0.0053
% Fluorine	0.0201	0.0039
Gross Calorific Value, BTU/lb (J/g)	6217 (14461)	349 (812)
Methods Employed: JCGM 100:2008; Evaluation of Measurement Data – Guide to the Expression of Uncertainty in Measurement; (GUM 1995 with Minor Corrections), Joint Committee for Guides in Metrology (JCGM) (2008); available at https://www.bipm.org/utis/common/documents/jcgm/JCGM_100_2008_E.pdf (accessed February 2025) JCGM 101:2008; Evaluation of Measurement Data – Supplement 1 to the Guide for the Expression of Uncertainty in Measurement; Propagation Distributions Using a Monte Carlo Method; Joint Committee for guides in Metrology (JCGM) (2008); available at https://www.bipm.org/utis/common/documents/jcgm/JCGM_100_2008.pdf (accessed February 2025).		

% Ash – Values indicate the amount of non-combustible matter in the material matrix as determined by combustion and gravimetry and are metrologically traceable to the International System of Units (SI) derived unit of mass fraction expressed as percent (%).

% Volatile Matter – Values indicate the amount of matter in the material matrix that is volatilized and released as gaseous substance, excluding moisture, when the material matrix is heated in the absence of air at 950°C +/- 20°C for 7 minutes. Values are metrologically traceable to the International System of Units (SI) derived unit of mass fraction expressed as percent (%).

% Fixed Carbon – Values indicate the amount of solid, combustible matter in the material matrix remaining after accounting for moisture, volatile matter, and ash. Values are metrologically traceable to the International System of Units (SI) derived unit of mass fraction expressed as percent (%).

% Carbon, Hydrogen, Nitrogen, Sulfur, Chlorine, Fluorine – Values indicate the amount of the element in the material matrix as determined using combustion and are metrologically traceable to the International System of Units (SI) derived unit of mass fraction expressed as percent (%).

% Gross Calorific Value – Values indicate the heat produced by complete combustion of the material matrix at constant volume accounting for the condensation of all water formed during combustion. Values are metrologically traceable to the International System of Units (SI) derived unit of J/g and the Imperial Unit of BTU/lb.

**The analytical results above are provided by an accredited reference material manufacturer with a current certification in ISO 17025 and 17034.*

The intended use of this Reference Material (RM) is for the verification and calibration of the methods of analysis below for the determination of the corresponding listed property values.

For the minimum sample size to perform an intended method, see the table below.

Test Method	Minimum sample size
Combustion/Gravimetry – % Ash	1.0g
Gravimetry – % Volatile Matter	1.0g
Combustion – % Carbon, Hydrogen, Nitrogen, Sulfur	0.10g
Combustion – % Chlorine	0.01g
Combustion – % Fluorine	0.05g
Combustion – Gross Calorific Value	0.8g

This reference material should be dried to constant mass at 105°C before use.

The Period of Validity for this RM is 15 years from the initial certification date, provided the RM is handled and stored in accordance with the instructions given in this certificate.

This bottle contains 50g of powder to be used per the test method you follow. Keep sealed tightly and store under normal laboratory conditions.

Refer to your test methods and or manufacturer manual for expanded uncertainties, repeatability/reproducibility factors.

For good laboratory practice, we recommend that all reference materials be verified as fit for purpose prior to use. Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Elemental Microanalysis Ltd. be liable for incidental or consequential damages.

Certified on the 1st of July 2025

Elemental Microanalysis Ltd