

Sugarcane Bagasse

REFERENCE MATERIAL

Pedigree

Institution: Alama Sugar Plantation
 Location: Pointe Coupee County, LA
 Crop Year: 2014

Sample Preparation: Processed Bagasse
 Received at INL: 2015

Composition

Table 1. Chemical composition^a of Reference Sugarcane Bagasse (completed 12/2015)

%Structural Ash	%Extractable Inorganics	%Structural Protein	%Extractable Protein	%Water Extracted Glucan ^b
6.93	2.08	1.06	0.52	0.20
%Water Extracted Xylan ^b	%Water Extractives Others	%EtOH Extractives	%Lignin	%Glucan
0.32	0.22	1.72	25.60	41.59
%Xylan	%Galactan	%Arabinan ^c	%Acetate	%Total
18.05	0.71	1.30	1.84	102.14

^aDetermined using NREL “Summative Mass Closure” LAP (NREL/TP-510-48087)

^bDetermined by HPLC following an acid hydrolysis of the water extractives

^c%Arabinan value includes %mannan, because arabinose and mannose co-elute on the HPLC column

Proximate, Ultimate & Calorimetry

Table 2. Proximate, ultimate, and calorific values for Reference Sugarcane Bagasse (reported on a dry basis; completed 1/2016)

Proximate ^a			Ultimate ^b					Calorimetry ^c	
%Volatile	%Ash	%Fixed Carbon	%Hydrogen	%Carbon	%Nitrogen	%Oxygen	%Sulfur	HHV	LHV
76.02	10.56	13.41	5.38	45.24	0.36	38.41	0.05	7829	6499

^aProximate analysis was done according to ASTM D 5142-09

^bUltimate analysis was conducted using a modified ASTM D5373-10 method (Flour and Plant Tissue Method) that uses a slightly different burn profile. Elemental sulfur content was determined using ASTM D4239-10, and oxygen content was determined by difference

^cHeating values (HHV, LHV) were determined with a calorimeter using ASTM D5865-10

Elemental Ash

Table 3. Elemental ash composition^a of Reference Sugarcane Bagasse (completed 12/2015)

%Al as Al ₂ O ₃	%Ca as CaO	%Fe as Fe ₂ O ₃	%K as K ₂ O	%Mg as MgO	%Mn as MnO	%Na as Na ₂ O	%P as P ₂ O ₅	%Si as SiO ₂	%Ti as TiO ₂	%S as SO ₃
7.20	2.74	2.40	4.46	1.30	0.06	1.30	0.95	79.19	0.40	0.57

^aDetermined as described in ASTM standards D3174, D3682 and D6349

Contact

For questions regarding biomass material or analytical data please contact Amber Hoover at amber.hoover@inl.gov or 208-526-5992.

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Revised on 11/28/2016.