Corn Stover

REFERENCE MATERIAL

Pedigree

Location: Story County, Iowa
Institution: DuPont
Harvested: October, 2014
Harvest Method: Multi pass
Sample Preparation: Ground to pass through a 2-inch sieve using a Vermeer BG480 grinder followed by a 1-inch sieve using a Bliss Hammermill

Composition

Table 1. *Chemical composition[a] of Reference Corn Stover (mean of analyses completed 11/2015 & 12/2015)*

%Structural Ash	%Extractable Inorganics	%Structural Protein	%Extractable Protein	%Water Extracted Glucan[b]
3.46	2.23	1.58	0.96	0.53
%Water Extracted Xylan[b]	**%Water Extractives Others**	**%EtOH Extractives**	**%Lignin**	**%Glucan**
0.26	2.36	2.62	16.52	37.52
%Xylan	**%Galactan**	**%Arabinan[c]**	**%Acetate**	**%Total**
21.77	1.66	3.37	2.45	97.28

[a]Determined using NREL "Summative Mass Closure" LAP (NREL/TP-510-48087)

[b]Determined 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 Corn Stover (reported on a dry basis; completed 1/2016)*

Proximate[a]			Ultimate[b]			Calorimetry[c]	
%Volatile	%Ash	%Fixed Carbon	%Hydrogen	%Carbon	%Nitrogen	HHV	LHV
77.82	6.91	15.27	5.59	45.74	0.62	7974	6581

[a]Proximate analysis was done according to ASTM D 5142-09

[b]Ultimate analysis was conducted using a modified ASTM D5373-10 method (Flour and Plant Tissue Method) that uses a slightly different burn profile

[c]Heating values (HHV, LHV) were determined with a calorimeter using ASTM D5865-10

Elemental Ash

Table 3. *Elemental ash composition[a] of Reference Corn Stover (completed 12/2015)*

%Al as Al_2O_3	%Ca as CaO	%Fe as Fe_2O_3	%K as K_2O	%Mg as MgO	%Mn as MnO	%Na as Na_2O	%P as P_2O_5	%Si as SiO_2	%Ti as TiO_2	%S as SO_3
3.51	7.73	1.27	13.01	3.64	0.13	0.61	1.22	65.31	0.15	1.27

[a]Determined 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.