Switchgrass
900.0 g dry weight
333.4 g glucan
268.5 g xylan
43.5 g arabinan
18.3 g galactan
203.2 g lignin
16.5 MJ energy density

Pretreated solids
497.5 g dry weight
291.6 g glucan
114.3 g xylan
15.9 g arabinan
2.0 g galactan
46.4 g lignin
6.5 g [C2mim][OAc]
8.3 MJ energy density

Enzyme 17.5 g
54 mg CTec2/g glucan
6 mg HTec2/g glucan

160°C, 3h atmosphere pressure
15% solid loading

Ionic Liquid Pretreatment

[C2mim][OAc]: 5100.0 g

Enzymatic Hydrolysis

Enzymatic Hydrolysis

Solids

89.5 g dry solids
0.7 g glucan
40.0 g xylan
43.9 g lignin
1.9 MJ energy density

89.5 g dry solids
0.7 g glucan
40.0 g xylan
43.9 g lignin
1.9 MJ energy density

Liquid

402.5 g biomass in IL for recovery
25.2 g glucan
87.6 g xylan
26.5 g arabinan
16.1 g galactan
8.2 MJ energy density

4721.4 g [C2mim][OAc]

Liquid

322.8 g glucose
67.2 g xylose
11.4 g arabinose
0.8 g galactose
6.3 MJ energy density

Overall yield of glucose from liquid streams = 94.8%
Overall yield of xylose from liquid streams = 62.2%
Overall lignin recovery from solid stream = 21.6%
Overall glucan balance = 95.0%
Overall xylan balance = 77.1%
Overall [C2mim][OAc] balance = 92.6%
Overall material energy recovery = 38.3%