Sugar Platform: Market Target Case

Dilute Acid Prehydrolysis with Enzymatic Hydrolysis

Minimum Sugar Selling Price: 5.6¢/lb (2000$)
Annual Production: 992,000,000 lb
Sugar Yield: 1,285 lb/dry ton

Annual Production: 69,000,000 gal
Ethanol Yield: 90 gal/dry ton

Corn Stover
2,000 dry metric ton/day
$30/dry ton
(33.4¢ per gal ethanol)

Dilute Acid Prehydrolysis
- 90% conversion of hemicellulose to monomers
- 190°C
- 1.1% Acid
- 2 min. residence time
- 30% solids
- No sugar losses in conditioning

Enzymatic Saccharification
- Enzyme purchase price
  - $0.10/gal ethanol per model
  - $0.14/gal per metric
- 90% cellulose to glucose conversion
- 20% effective solids

Co-Fermentation
- 95% glucose to ethanol yield
- 85% xylose to ethanol yield
- 85% arabinose to ethanol yield
- 85% galactose to ethanol yield
- 85% mannose to ethanol yield
- 3% contamination loss

Design Case reported in Aden, et al design report (NREL/TP-510-32438)
(considered for the 2005 budget request but was not used)
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Models: I0203I & R0204E