ZeaChem

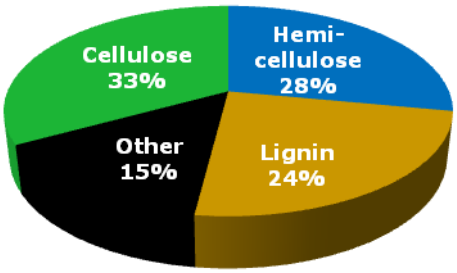
Cellulosic Ethanol

ZeaChem Inc. has developed a cellulose-based biorefinery platform capable of producing advanced ethanol, fuels and chemicals. ZeaChem's indirect approach leapfrogs the yield and carbon dioxide (CO_2) problems associated with traditional and cellulosic based ethanol processes. ZeaChem's patented process offers the highest yield, at the lowest cost, with the lowest fossil carbon footprint of any known biorefining method.

Cellulosic ethanol is a biofuel produced from wood, grasses, or the non-edible parts of plants. Cellulose is contained in nearly every natural, free-growing plant, tree, and bush all over the world. Because of this diversity, cellulosic ethanol production has the advantage of abundant and diverse raw materials compared to ethanol processes that use corn and cane sugars. Cellulosic biomass is an ideal choice for biorefining because it grows abundantly throughout the world and replenishes quickly and easily in poor quality soil. Another significant benefit of using cellulosic biomass is that it effectively ends the "food vs. fuel" debate that has drawn so much negative publicity to corn based ethanol plants.

Cellulosic biomass is made up of cellulose and hemicellulose along with lignin and ash (minerals). The energy content of most biomass resources is roughly split 2/3 in the fermentable cellulose and hemicellulose fractions and 1/3 in the non-fermentable lignin and other fractions.

Cellulosic Biomass Composition



ZeaChem's hybrid process fully utilizes all of the available carbon from the cellulose and hemicellulose in the biochemical (fermentation) process, while producing hydrogen from the lignin fraction through the thermochemical process. Thus, the energy from all fractions of the biomass are utilized and create the highest net conversion efficiency of any known cellulosic ethanol process. ZeaChem achieves the highest yield of 135 gallons per bone dry ton (gal/BDT) of feedstock compared to 60-100 gal/BDT from other cellulosic processes.

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