Butanol

~A four carbon alcohol. It has double the amount of carbon of ethanol, which equates to a substantial increase in harvestable energy (Btu's).

~Butanol is safer to handle with a Reid Value of 0.33 psi, which is a measure of a fluid's rate of evaporation when compared to gasoline at 4.5 and ethanol at 2.0 psi.

~Butanol is an alcohol that can be but does not have to be blended with fossil fuels.

~Butanol when consumed in an internal combustion engine yields no SOX, NOX or carbon monoxide all environmentally harmful byproducts of combustion. CO2 is the combustion byproduct of butanol, and is considered environmentally 'green'.

~Butanol is far less corrosive than ethanol and can be shipped and distributed through existing pipelines and filling stations.

~Hydrogen generated during the butanol fermentation process is easily recovered, increasing the energy yield of a bushel of corn by an additional 18 percent over the energy yield of ethanol produced from the same quantity of corn.

~Current butanol prices as a chemical are at $3.75 per gallon, with a worldwide market of 370 million gallons per year. The market demand is expected to increase dramatically if green butanol can be produced economically from low cost biomass.

~Biobutanol can be produced by fermentation of biomass by the A.B.E. process. The process uses the bacteriumClostridium acetobutylicum, also known as the Weizmann organism

~In conventional ABE fermentations, the butanol yield from glucose is low, typically around 15 percent --Butanol at a concentration of 1 percent can significantly inhibit cell growth and the fermentation process. Consequently, butanol concentration in conventional ABE fermentations is usually lower than 1.3 percent

~A new process has been developed using continuous immobilized cultures of Clostridium tyrobutyricum and Clostridium acetobutylicum to produce an optimal yield of 42 percent.

~this process eliminates acetic, lactic and propionic acids, acetone, isopropanol and ethanol production. The fermentation only produces hydrogen, butyric acid, butanol and carbon dioxide, and doubles the yield of butanol from a bushel of corn from 1.3 to 2.5 gallons per bushel.

~Has the potential to reduce our nation's dependence on foreign oil, protect our fuel generation grid from sudden disruption while developing our agricultural base and reduce global warming.

~Growing consumer acceptance and name recognition for butanol, incentives to agriculture and industry, falling production costs, increasing prices and taxes for fossil fuels, and the desire for cleaner-burning sources of energy should drive an increase in butanol production.