

biobutanol fact sheet

Biobutanol, an advanced biofuel, offers a number of advantages and can help accelerate biofuel adoption in countries around the world. It provides greater options for sustainable renewable transportation fuels, reduces dependence on imported oil, lowers greenhouse gas emissions, and expands markets for agricultural products worldwide.

Biobutanol

- Represents the next significant change required to meet the growth in demand for environmentally responsible, renewable fuels for transportation.
- Can be blended into standard grade gasoline or gasoline containing ethanol, is compatible with existing vehicle technology and has the potential to be incorporated into the existing fuel supply infrastructure.

Biobutanol's Advantages

- Can be easily added to conventional gasoline, due to its low vapor pressure.
- Has an energy content closer to that of gasoline than ethanol so consumers face less of a compromise on fuel economy – this is particularly important as the amount of biofuel in the fuel blend increases.
- Can be blended at higher concentrations than bioethanol for use in standard vehicle engines. Currently biobutanol can be blended up to 10% volume over volume (v/v) in European gasoline and 11.5%v/v in US gasoline.
- Well suited to current vehicle and engine technologies.
- Does not require automakers to compromise on performance to meet environmental regulations.
- Can be used in higher blend concentrations than ethanol without requiring specially adapted vehicles. There is the potential in the future to increase the maximum allowable use in gasoline up to 16% volume.
- Is less susceptible to separation in the presence of water than ethanol/gasoline blends, and therefore allows it to use the industry's existing distribution infrastructure without requiring modifications in blending facilities, storage tanks or retail station pumps.
- Is expected to be potentially suitable for transport in pipelines, unlike existing biofuels; as a result, biobutanol has the potential to be introduced into gasoline quickly and avoid the need for additional large-scale supply infrastructure.

Biobutanol has a number of synergies with bioethanol

- Biobutanol is produced from the same agricultural feedstocks as ethanol (i.e. corn, wheat, sugar beet, sorghum, cassava and sugarcane).
- Existing ethanol capacity can be cost-effectively retrofitted to biobutanol production (minor changes in fermentation and distillation).
- There is a vapor pressure co-blend synergy with biobutanol and gasoline containing ethanol, which facilitates ethanol blending.
- Offers biomass producers and the biofuel converters the option of upgrading to a higher value bio-molecule. It is also compatible with and facilitates the introduction of ethanol into the fuel pool.

Production

- Can utilize a variety of conventional feedstocks such as sugar cane, sugar beet, corn, wheat, cassava and sorghum, supporting global implementation.
- Will have processes compatible with future biofuel feedstocks such as lignocellulosics from fast-growing energy crops (e.g. grasses) or agricultural byproducts (e.g. corn stalks).

Environmental Benefits

- DuPont and BP are currently in the process of carrying out detailed calculations of biobutanol's GHG Well-to-Wheel/ Life Cycle Analysis emission performance. Initial indications are that, on the same feedstock basis, biobutanol delivers emission reductions that are at least as good as ethanol.
- Biobutanol's low vapor pressure (lower than gasoline), means that vapor pressure specifications do not need to be compromised, leading to higher VOC emissions (i.e. no requirement for a vapor pressure relaxation).

Agricultural Benefits

- Biobutanol is produced from the same agricultural feedstocks as bio-ethanol (i.e. corn, wheat, and sugar beet/cane).
- Biobutanol is good for global farmers as it provides another marketing opportunity for key agricultural products, thus enhancing value to farmers.
- By facilitating / smoothing the introduction of biofuels into gasoline, either directly as biobutanol or indirectly through biobutanol's synergy with ethanol, biobutanol will help expand the biofuels market as well as the markets for related agricultural produce, enhancing value for farmers.



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