



Biobutanol fact sheet

Biobutanol, an advanced biofuel, offers a number of advantages and can help accelerate biofuel adoption in countries around the world. BP and DuPont are working together to develop high octane isomers of biobutanol.

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Represents the next significant change required to meet the growth in demand for environmentally responsible, renewable fuels for transportation.

Biobutanol's advantages

- Can be easily added to conventional gasoline and can use the existing supply infrastructure.
 - Is less susceptible to separation in the presence of water than ethanol/gasoline blends, and therefore can use the industry's existing distribution infrastructure without requiring modifications in blending facilities, storage tanks or retail station pumps.
 - Is expected to be suitable for transport in pipelines, unlike existing biofuels.
 - Does not increase vapour pressure when added to gasoline, avoiding the need for special gasoline base blends needed to prevent an increase in emissions of volatile organic compounds (VOCs).
- 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.
- Well suited to current vehicle and engine technologies and does not require automakers to compromise on performance to meet environmental regulations.

- Can be blended at higher concentrations than bioethanol for use in standard vehicle engines. Currently, biobutanol can be blended up to 10%v/v in European gasoline and 11.5%v/v in US gasoline.
- There is the potential in the future to increase the maximum allowable use in gasoline up to 15-16% volume.

Biobutanol has a number of synergies with bioethanol

- Biobutanol is produced from the same agricultural feedstocks as ethanol (e.g. sugarcane, corn, wheat, sorghum and cassava).
- Production process similar to ethanol offering possibility for retrofit of existing ethanol capacity to biobutanol production.
- There is a vapour 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 utilise a variety of conventional feedstocks such as sugarcane, corn, wheat, sorghum and cassava, supporting global implementation.
- Will have processes compatible with future cellulosic biofuels from fast-growing energy crops (e.g. grasses) or agricultural by-products (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/lifecycle analysis emissions performance.
- Biobutanol's low vapour pressure helps ensure lower VOC emissions since there is no need to lower vapour pressure specifications even when the amount of biofuel in the blend is increased.

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.