About

Ethanol fuel specifications worldwide traditionally dictate use of anhydrousÂ ethanol (less than 1% water) for gasolineÂ blending. This results in additional costs, energy usage and environmental impacts associated with the extra processing step required to dehydrate the hydrous ethanol produced via distillation (4-5% water) to meet the current anhydrous ethanol specifications. A patented discovery reveals for the first time what conventional wisdom has overlooked â€“ namely that hydrous ethanol can be effectively used in most ethanol/gasoline blending applications, reducing or eliminating the need for anhydrous ethanol production and distribution.Â Investigations of ethanol dehydration processes by Process Design Center led to research work that revises and advances the technical understanding of water tolerances of ethanol/gasoline mixtures and the conditions under which phase separation occurs. To verify and validate this discovery -- covered by International Patent Number WO 2006/137725 A1 -- HE Blends BV has pursued its continuing test programs in Europe, including operation and testing of vehicles with hydrous ethanol/gasoline blends. Expanded testing and in-use demonstration programs in Europe, Africa, North America and other places are intended to satisfy ethanol stakeholders worldwide of the effectiveness of hydrous ethanol for gasoline blending and facilitate the approval and market introduction of hydrous ethanol for gasoline blending.

The benefits of HE Blends BVâ€™s discovery stem primarily from the avoided capital, operating and energy costs of eliminating the need for the hydrous-to-anhydrous ethanol production step, and the additional production volume throughput possible with hydrous ethanol. The potential for higher thermodynamic efficiencies of engines operated with hydrous versus anhydrous ethanol also continues to be investigated.Â Â Additional cost savings should also occur in the fuel distribution system due to the less severe water tolerance practices required for hydrous versus anhydrous ethanol, and elimination of the need to produce and separately store and transport two different forms of ethanol. Overall, a transition from anhydrous to hydrous ethanol for gasoline blending is expected to make a significant contribution to ethanolâ€™s cost-competitiveness, fuel cycle net energy balance, and greenhouse gas emissions.

Another well known benefit of water in fuels is the potential to reduce the formation of particle emissions. Todayâ€™s discussions about the high level of particle emissions caused by two stroke engines used in scooters and mopeds is an area were hydrous ethanol blends might be a solution reducing those emissions. This potential is addressed and well received by various stakeholders and continues to be investigated.