

What is the significance of undergoing a Periodic Vehicle Inspection Maintenance Program or VIP?

It is a good practice for in-use vehicles to undergo the Vehicle Manufacturer's recommended periodic VIP check and tune-up service prior to and after using E10 to optimize the benefits of using ethanol blended fuels.

For carbureted engines, minor carburetor mixture adjustments may have to be made in order to optimize fully its low carbon monoxide and hydrocarbon emissions which greatly help in meeting vehicle emission standards of the Philippine Clean Air Act implemented by the Private Emission Testing Centers (PETC) prior to the renewal of vehicle registration.

Where can I buy ethanol-blended gasoline?

Bioethanol is available as E10 or 10% bioethanol-blended mix with gasoline initially in selected gasoline stations since end of August 2005.

Why is the government promoting the use of bioethanol as alternative fuel?

The government is aggressively promoting the development and utilization of indigenous alternative fuels, such as, bioethanol and coco-biodiesel, as a key measure to attaining energy independence. Through the long-term alternative fuels program, the Department aims to reduce our dependence on imported oil and to provide cheaper and more-environment-friendly alternatives to fossil fuels.

What initiatives have been undertaken to jumpstart the bioethanol program?

President Gloria Macapagal-Arroyo launched the fuel ethanol program in May 2005 in San Carlos, Negros Occidental when she led the groundbreaking of the country's first bioethanol manufacturing plant in San Carlos Bio-Energy. The fuel ethanol program aims to replace 10 percent of the imported gasoline with domestically-produced fuel ethanol (initially at 5% increasing to 10% as the program progresses).

The Department of Energy (DOE) is pushing for the passage of the Bioethanol Bill which provides for the mandatory use of 5% blend of bioethanol in the second year of implementation, when locally-produced bioethanol becomes available (and which would result in potential gasoline displacement of 236 million liters equivalent to US\$129 million of forex savings per year) and 10 % in the fourth year (which would result in potential gasoline displacement of 536 million liters equivalent to US\$294 million of forex savings per year).

Potential Savings from the Bioethanol Program

Blend	Gasoline Displacement (million liters)	Forex Savings Per Year (million US\$)
5%	236	129
10%	536	294

The President has also issued Executive Order No. 449 on July 22, 2005, effectively reducing the tariff on bioethanol fuel to 1%. This would ensure the price competitiveness of bioethanol blended gasoline vis-à-vis other gasoline products especially now that there is currently no local producer of bioethanol fuel. As an interim measure prior to full availability of domestic supply for bioethanol, the tariff reduction provides an incentive for the oil companies to start importing bioethanol fuel to make it available at the pump.

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Consumer Talk



FREQUENTLY ASKED QUESTIONS ON BIOETHANOL

A Technical Guide for Motorists





What is Bioethanol?

- A high-octane, water-free alcohol produced from the fermentation of sugar or converted starch.
- In its purest form, it is a colorless clear liquid with mild characteristic odor that boils at 78°C and freezes at -112°C.
- It has no basic or acidic properties.
- Can be used as liquid fuel in internal combustion engines either on its own or blended with petroleum.
- Hydrous bioethanol (95% purity) is used as pure alcohol fuel.
- Anhydrous bioethanol (99.5% purity) is used for blending with gasoline.

History of Bioethanol Use

- Bioethanol was one of the first fuels used in automobile engine
- It was used extensively in Germany during World War II and also in Brazil, Philippines, and in the United States.
- During the postwar period, as petroleum supplies became cheap and abundant, gasoline largely replaced bioethanol as automotive fuel.
- In the 1970s, when the supply of oil was restricted, bioethanol re-emerged as an alternative to or extender for petroleum-based liquid fuels (ethanol as an extender is added to these fuels to increase their volume).

What makes Bioethanol a suitable alternative to gasoline?

The properties of bioethanol make it suitable for use as a substitute for gasoline:

- Energy per unit volume : 22 MJ/liter
- Octane Index (research) : 106
- Specific Gravity @ 15.5°C : 0.79 kg/liter

How many countries have been producing and using Bioethanol as alternative transportation fuel?

Today, 12 countries produce and use a significant amount of bioethanol. In Brazil, for example, one third of that country's automobiles use pure bioethanol as fuel; the remaining two-thirds use mixtures of gasoline and ethanol. France, the United States, Indonesia, Philippines, Guatemala, Costa Rica, Argentina, Republic of South Africa, Kenya, Thailand and Sudan are other countries with government or private ethanol fuel programs.

What are the benefits of using Bioethanol?

Major vehicle manufacturers worldwide particularly vehicles manufactured and sold in US and Europe that meet these two countries' vehicle emission standards and are also now sold in the Philippines approve the use of E-10 blended unleaded, which provides the following benefits such as:

- Improved combustion efficiency of gasoline because of the oxygenates that is inherent to bioethanol, thus translating to better performance, reduced carbon monoxide and unburned hydrocarbon emissions which, in most cases, improves fuel economy;
- High octane rating at low cost; better alternative to harmful fuel additives;
- Biodegradable without harmful effects on the environment;
- Reduced greenhouse gas emissions because it burns more efficiently thus significantly reducing unburned carbons;
- High volumetric efficiency and with cooler burning than straight gasoline helping to keep valves cool which contributes to increase in power;
- Bioethanol expands the market for Filipino farmers, particularly the sugar sector, thus enhancing rural economic development;
- Pure bioethanol can replace gasoline in modified spark-ignition engines, or it can be blended with gasoline at up to 13% concentration to fuel unmodified gasoline engines;

- Blending serves two purposes: (1) it extends gasoline supplies, and (2) as an octane enhancer, it replaces metallic-based additives;
- The programs are designed to reduce the country's dependence on costly imported fuel and to assist in creating a new domestic fuel industry;
- The production and use of bioethanol can indirectly serve a variety of needs. On a national level, bioethanol can improve balance of payments by displacing imported petroleum with domestically produced fuel. This may also provide increased rural employment and alternative markets for agricultural commodities.

Can E10 unleaded be used in older cars?

The formulation of gasoline has changed dramatically over the past few years without affecting the performance of old cars. As the engine gets older, the octane requirements of the engine increase due to carbon formation in the pistons and combustion chambers. The bioethanol in E10 raises octane rating in gasoline and it does so using a natural, renewable additive that works well in older engines.

Will the use of E10 harm my engine?

A 10% blend of bioethanol will not harm the engine because of the following:

- Bioethanol has a cleansing effect that removes rust and other unwanted contaminants that may have accumulated in the tank and fuel system over the years;
- Fuel filters may clog with rust and debris in its initial use which would require fuel filter replacement. However, the cleansing property of E10 keeps the fuel system cleaner which translates to better performance;
- Once fuel system has been cleaned, the car performs better and more efficiently. Original Equipment Manufacturer (OEM) quality replacement filters and fuel hose components are very important due to their reliability which can tolerate oxygenated fuels.

Important: Make sure to use original replacement parts as recommended by the manufacturer and avoid using imitation, fake, inferior, or substandard parts.