

Straight Answers on Advanced Technologies

What is Propane?

Propane or liquefied petroleum gas (LPG) is a popular alternative fuel choice for vehicles because there is already an infrastructure of pipelines, processing facilities, and storage for its efficient distribution. Besides being readily available to the general public, LPG produces fewer vehicle emissions than gasoline. Propane is produced as a by-product of natural gas processing and crude oil refining. Propane is a nontoxic, colorless, paraffinic gas that is compressible to a liquid for safe transport in inexpensive containers. According to the Gas Processors Association's HD5 specification for Liquefied Petroleum Gas as a transportation fuel, LPG must consist of 90% propane, no more than 5% propylene, and 5% other components (primarily butane and butylene). Propane is produced as a by-product of natural gas processing and petroleum refining. The components of LPG are gases at normal temperatures and pressures.

How is Propane Made?

Propane is a by-product from two sources: natural gas processing and crude oil refining. Most of the LPG used in the United States is produced domestically. When natural gas is produced, it contains methane and other light hydrocarbons that are separated in a gas processing plant. Because propane boils at -44°F and ethane boils at -127°F , it is separated from methane by combining increasing pressure and decreasing temperature. The natural gas liquid components recovered during processing include ethane, propane, and butane, as well as heavier hydrocarbons. Propane and butane, along with other gases, are also produced during crude refining as by-products of the processes that rearrange or break down the molecular structure to obtain more desirable petroleum compounds.

What Vehicles Can Use It?



Today there are more than 200,000 propane vehicles in the United States and about 9 million worldwide. These include cars; pickup trucks and vans; medium/heavy-duty vehicles such as shuttles, trolleys, delivery trucks, and school buses; and off-road vehicles such as forklifts and loaders. Propane has been used as a transportation fuel around the world for more than 60 years. Propane vehicles can be equipped with dedicated fueling systems designed to use only propane, or bi-fuel systems that enable fueling with either propane or gasoline. A

number of manufacturers produce medium-duty propane vehicles. Several companies offer buses, shuttles, and trolleys that can be fueled with propane. Most light-duty propane vehicles on the road are aftermarket conversions. Converting an existing vehicle to propane must be certified under Mobile Source Enforcement Memorandum 1A as well as the addendum and revision to Memo 1A. Companies that can convert an existing vehicle to propane fuel can be found at http://www.eere.energy.gov/afdc/progs/res_guide.cgi?CONVCO.

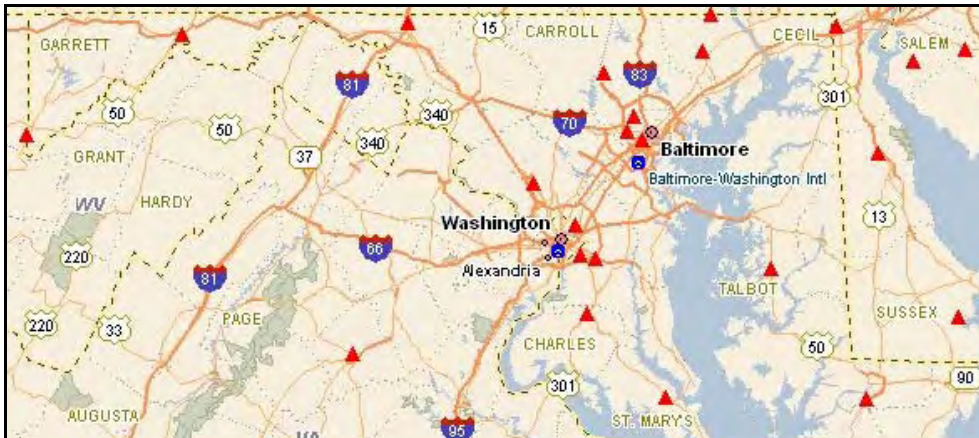


Why Should We Use Them?

Vehicles fueled by propane reduce greenhouse gas emissions relative to gasoline fueled vehicles. Propane vehicles produce fewer ozone-forming emissions than vehicles powered by reformulated gasoline. In addition, tests on light-duty bi-fuel vehicles have demonstrated a 98% reduction in the emissions of toxics when the vehicles were running on propane rather than gasoline. The cost of a gasoline-gallon equivalent of propane is generally cheaper than a gallon of gasoline, reducing the fuel costs of a propane vehicle. Propane use as a transportation fuel can help reduce U.S. dependence on imported oil and strengthen national energy security since 85% of all propane being used in the country is produced domestically.

Where Can I Get It in Maryland?

There are nearly 3,400 propane fueling stations in the U.S. – the most of any alternative fuel. Almost all of these stations are open to the general public. Currently, there are 15 LPG refueling stations in Maryland (map), all open to the general public. Their addresses can be found in the U.S. Department of Energy's database of alternative refueling stations at <http://www.eere.energy.gov/afdc/infrastructure/locator.html>.



What is the State Doing for Propane Use?

The Maryland Energy Administration is the State's lead agency in developing and implementing fuel neutral programs that promote the use of alternative fuel vehicles (AFVs) and energy efficiency in transportation. Transportation efficiency and alternative fuel projects are funded and administered by a partnership between the Maryland Energy Administration (MEA), Maryland Department of the Environment (MDE), Maryland Department of Transportation (MDOT), US Department of Energy (DOE), Maryland Clean Cities Program (MCC), and the Metropolitan Washington Council of Governments Alternative Fuels Partnership (MWAFFP).

What is the Federal Government Doing for Propane Use?

Section 1341 of the Energy Policy Act of 2005 provides a tax credit to buyers of new alternative fuel vehicles placed in service as an alternative fuel vehicle after January 1, 2006. The legislation provides for a tax credit equal to 50% of the incremental cost of the vehicle, plus an additional 30% of the incremental cost for vehicles with near-zero emissions (SULEV or Bin 2 for vehicles <14,001 lb GVWR). The credit is available on the purchase of light-, medium-, and heavy-duty propane vehicles. For non-tax-paying entities, the credit can be passed back to the vehicle seller. The tax credit expires December 31, 2010. This tax credit also extends to vehicle conversions when the conversion system manufacturer has received a certificate of conformity from the EPA or California Air Resources Board.



Where Can I Find More?

For more information on propane and propane vehicles, you can visit the Propane Education and Research Council website:

<http://www.propanecouncil.org>

Or the U.S. Department of Energy:

<http://www.eere.energy.gov/afdc/altfuel/propane.html>

http://www.eere.energy.gov/afdc/afv/prop_vehicles.html

For more information on the Maryland Clean Cities Program and how you can help:

<http://www.energy.state.md.us/programs/transportation/cleancities/index.html>

October 2006



www.energy.state.md.us

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