Biodiesel Fact Sheet

Introduction

Biodiesel is like diesel fuel except it is produced from natural renewable resources -- vegetable oils, such as soy, canola, tallow and restaurant greases. There are two general categories of biodiesel use: 100% biodiesel ("B100") and a blend of 20% biodiesel with 80% petroleum diesel ("B20").

Biodiesel is currently more expensive than petroluem diesel. Some organizations are using B20 because it is less expensive than B100. The cost differential between biodiesel and petroleum diesel is expected to be reduced substantially within the next 5 years.

Benefits of Biodiesel

Made from cooking oils and alcohol, biodiesel is biodegradable and very safe to handle. Biodiesel has a high flashpoint of about 300 F, compared to petroleum diesel's flashpoint of 125 F. If biodiesel spills on the ground, it will quickly degrade into natural organic residues.

The use of biodiesel can extend the life of diesel engines because it is more lubricating than petroleum diesel fuel. Biodiesel is 11% oxygen, which means that even in a blend such as B20, it assists in the combustion of the hydrocarbons.

Biodiesel reduces air pollution and reduces greenhouse gases. The exhaust from biodiesel smells much better than diesel exhaust. The table below presents the emission differences of B100 and B20, relative to diesel. Because there is no sulfur in biodiesel, in does not contribute to sulfur dioxide emissions. B20 provides essentially 20% of the benefits of pure biodiesel. B20 can also reduce the soot and smell of diesel exhaust.

Emission	B100	B20
Carbon monoxide	-43.2%	-12.6%
Hydrocarbons	-56.3%	-11.0%
Particulates	-55.4%	-18.0%
Nitrous oxides	+5.8%	+1.2%
Air toxics	-60-90%	-12-20%
Mutagenicity	-80-90%	-20%

(From "Biodiesel for the Global Environment" produced by the Dept. of Energy, May 2000.)

Issues

The major remaining issues associated with the use of biodiesel by the City of Palo Alto are cost, availability, cleaning of storage tanks, and the effect of the product on the engine seals (biodiesel can degrade rubber seals). Palo Alto staff are currently working on these issues. Price, availability, and tank cleaning issues are being discussed with fuel suppliers. Compatibility with engine seals is being confirmed with equipment manufacturers. It will be prudent for Palo Alto to utilize B20 on a pilot basis first, using the product on a portion of the City's diesel engines.

Palo Alto Strategy

Palo Alto has begun piloting the use of B20 at the landfill and golf course engines. Depending on performance, price, and availability, B100 may also be piloted. Again, depending on the results, biodiesel (either as B20 or B100) could then be utilized on the City's other diesel engines. Standby generators could also be converted, however these are lower priority because of their relatively small and infrequent usage. Tank cleaning issues may be an issue, due to the large number of individual tanks.