



ecology center

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Berkeley Curbside Recycling Trucks Now Fueled by Recycled Vegetable Oil

Berkeley, California, (Wednesday, April 18, 2001) - "All day, I smell french fries, which smell much better than diesel fumes" says veteran curbside recycler Francisco Muniz as he starts up his 33,000 pound diesel engine truck. Once again, Berkeley's Ecology Center is pushing the envelope on closed-loop recycling. As the city of Berkeley's residential curbside recycling contractor, the Ecology Center is now running its entire ten truck Clean Air Fleet exclusively on Biodiesel, a DOE and EPA certified alternative fuel made from transesterized spent restaurant vegetable frying oil.

"The trucks run smoothly and have more power," says Dave Williamson, Recycling Operations Manager for the Ecology Center, "and the particulate emissions are almost nonexistent. You can say goodbye to that black cloud of sooty smoke spewing from the exhaust pipe." Biodiesel runs directly through diesel engines without any conversions and can be mixed with petroleum based diesel fuels.

"What most excites us about Biodiesel is that it simultaneously reduces air pollution and our dependence on fossil fuels, and without the toxic side effects of other clean air efforts like the addition of MTBE to gasoline," explains Martin Bourque, the Ecology Center's Executive Director. "We are helping to address air quality for our neighborhoods and drivers, while reducing the need to develop oil and gas fields in the Alaskan North Slope or in other environmentally sensitive areas around the world. We hope other fleets will make the change too."

The most commonly used alternative fuels are petroleum based or blended with petroleum. Though their use may reduce the amount of petroleum consumed it still results in continued petroleum exploration and drilling. Alternatively, Biodiesel is an agricultural product, which, even before it is used in the food industry, has less environmental impact than petroleum extraction and processing. Although large-scale corporate farming is heavily dependent on petroleum for mechanization, irrigation, and chemical inputs, the vast majority of energy used to produce vegetable oil is solar.

The California Air Resources Board says that emissions from on-road heavy-duty vehicles are major contributors to poor air quality in California, and that 70% of air toxic risk is from diesel engines. Working closely with the U.S. Environmental Protection Agency, engine and vehicle manufacturers, and other interested parties, the Board recently developed a series of regulations to reduce heavy-duty vehicle emissions in California. Truck manufacturers are now mandated to develop lower emission diesel engines and all existing diesel engines must be retrofitted including refuse and recycling trucks.

Following the Ecology Center's tradition of innovation, Mr. Williamson was already investigating alternatives to diesel such as Compressed Natural Gas (CNG), B-20, mixture of conventional diesel with 20% Biodiesel, as well as 100% Biodiesel. He found that systems such as CNG require expensive conversions, and still promote oil and gas exploration and extraction, while Biodiesel needs only non-rubber hoses and gaskets and clean fuel tanks to operate. In addition, CNG prices have skyrocketed over the last year.

"Compressed natural gas burns clean like Biodiesel," says Mr. Williamson, "but you are still pumping carbon (oil) out of the subsoil and putting it into the atmosphere, adding to the greenhouse effect. Biodiesel reuses existing carbon in the air - plants combine carbon dioxide with water and sunshine to make oil, which we use to run our trucks. It is much more of a sustainable closed system approach."

After researching Biodiesel, Mr. Williamson and the curbside drivers conducted a series of Biodiesel tests in cooperation with CytoCulture International, Inc. of Richmond. B-20 resulted in a 24% decrease in exhaust particulates compared to conventional diesel fuel and 100% Biodiesel resulted in nearly a 100% decrease in particulate matter! The exhaust had a detectable "french-fry" odor but most would agree that it is an improvement over diesel fumes. A 10% decrease in mileage per gallon was also noted accompanied by an apparent increase in power.

Biodiesel eliminates particulates (soot) and aromatics (smells) but does add a slight amount of nitrogen oxides (NOX) to the exhaust of a truck. NOX can be removed by the use of a catalytic converter or an exhaust return. Additionally Biodiesel is easy to make and can be produced locally to consume the thousands of gallons of grease used daily by local restaurants and food processors.

Bulk Biodiesel costs are 150% that of diesel. Fortunately mileage is not as critical an issue for curbside collection fleets as it is for long haul trucks, since distances are shorter and much of the time on route the trucks are idling. Biodiesel prices are expected to drop soon, as the USDA has started a subsidy program to encourage the manufacture of Biodiesel as a way to support soy and corn farmers facing low commodity prices.

The Berkeley Ecology Center has a long history of innovation and advocacy for closed loop recycling. Twenty-seven years ago, they embarked on what is now one of the oldest curbside recycling programs in the country. In the eighties, when Bay Area landfills began to fill up and close down, the Ecology Center led the local fight against garbage-to-energy incinerators that would have burned our waste and produced toxic smoke and incinerator ash. As a result, "Reduce, Reuse, and Recycle" became the official policy.

Like hundreds of other California cities and counties facing solid waste crises and new regulations, the City of Berkeley and Alameda County began vigorous efforts to reduce the waste stream by 50%

by 2000. Berkeley the 50% goal in 1989, and the City and the Ecology Center support the County's next goal of 75% diversion and the long-term goal of zero waste.

To get there, we need a much higher level of responsibility both on the part of manufactures with regard to their use of packaging and on the part of consumers with regard to their purchasing choices and participation in household recycling. The City and the Ecology Center have partnered to increase participation through projects like Cash for Trash, the contest that rewards Berkeley residents for recycling well, and the Plastic Education Project, which is educating the same Berkeley residents against unwarranted plastic use, and challenging manufacturers to reduce waste generation at the source.

With the Biodiesel program, the Ecology Center continues to give the people of Berkeley much more than a typical waste management firm. As an activist non-profit organization, it strives for the highest standards in closing the recycling loop such as assuring that glass bottles are turned back into glass bottles rather than sand or asphalt, and pressuring the plastics container industry to use post consumer plastic. The Ecology Center also provides other services critical to environmental improvement in the community such as the maintaining the Environmental Resource Center and Hotline, operating the Berkeley Farmers' Markets, and publishing Terrain, Northern California's Environmental Magazine. The Ecology Center also advocates for the improvement and preservation of the environment through sponsoring projects such as Bay Area Coalition for Headwaters, the Community Water Rights Project, and the Berkeley Food Policy Council.

For information on these Ecology Center programs call 510 548-2220 or visit: <http://www.ecology-center.org/>.

For additional information on the Ecology Center Biodiesel Program, please call the numbers below:

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For information on Biodiesel please visit:
<http://www.Biodiesel.org/> CytoCulture International, Inc.
<http://www.cytoculture.com/Bdiesel.html>.

For information about the upcoming diesel engine regulations visit:
The California Air Resources Board
<http://www.arb.ca.gov/homepage.html>

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