

The biodiesel project

At this point, you've made your own biodiesel. Great; now what?

Lyle Estill, in his book *Biodiesel Power* (New Society Publishers, 2005), says "Biodiesel has buzz. In the commercial fuel sector it has buzz as a lubricity additive to petroleum diesel. In the clean air crowd it has buzz for its reduced emissions. In agricultural circles it is talked about as a new cash crop. Academia is excited because biodiesel is a frontier, full of unknowns....Biodiesel has buzz with the peaceniks because there is 'No War Required' to obtain it. It has traction with those on the right side of the political spectrum because it can be 'Made In America'."

Clearly, there is a lot of hype and excitement about this fuel. In this project, you (in a small group) will try to separate the hype from the facts (as they are known at this time), and present your findings to the class in a 5- to 10-minute presentation (as well as a written report).

Procedure:

- Find yourself a small group to be part of. Four to five person groups are ideal for this length of presentation. One person can be the chair of the group, getting members' contact information and making sure communications occurs. One person can be the presenter, who will actually give the report. One person can be the recorder, who will put together the written report. One or two people can be the researchers, tracking down promising sources of information. All members can be the presentation and report editors, putting together the most coherent oral and written thoughts.
 - Pick one of the following topics and assess it for truthfulness.
1. "There are so many different grades of biodiesel that people will be confused as to what to use and therefore will not buy it."
 2. "Modern automotive engines cannot handle biodiesel because biodiesel does not put out as much heat as petroleum-based diesel."
 3. "Biodiesel ultimately does not save any energy costs over the refining of petroleum because of the chemical reactions needed to produce it."
 4. "Biodiesel will put a stress on American agriculture because, in order to make enough biodiesel to fuel cars in the US, American farmers would have to stop growing soybeans and other oil sources for food in order to make enough vegetable oil."
 5. "Biodiesel produces as much or more emissions of carbon dioxide, compared to petroleum diesel, and therefore is not any 'greener' than petroleum diesel."

6. "Truckers and other commercial haulers like biodiesel because a blend of biodiesel with petroleum diesel improves the lubricity of the fuel." (What the heck is lubricity, anyway?)

7. "Biodiesel is difficult to come by, especially in western Washington, where there are no large growers of soy or other oil-bearing plants."

- Give me a roster of your group (and the chair's e-mail address), and which three topic (by number) your group would like to do. I will choose a topic out of your three, and tell the chair of the group which topic I selected by e-mail. In this way, all seven topics should be covered.

Requirements for the overall project

Recall that this is a chemistry class. Please relate your topic to some aspect of chemistry, whether it be molecular shape, thermochemistry, heck, even a balanced equation.

Requirements for the oral presentation:

Your group may have a single presenter, or multiple presenters.

Your group's talk must be accompanied by at least one visual element, whether it be an overhead diagram, a Powerpoint slide or a poster. The visual element must be referred to during the talk.

Requirements for the written report:

The report should be word-processed, double-spaced and proofread.

It should be as long as is needed to explain the main points of your topic (in other words, it should assess the validity of the biodiesel claim), *with evidence from outside sources*.

It should contain a reference to at least one non-Internet (i.e., printed) source.

It should have a bibliography. Electronic sources must have a citation that states the author or sponsoring organization, the URL of the source, and the last update date of the information.

Dates of the presentations:

November 8 — Topic 4

November 13 — Topic 1

November 15 — Topic 2

November 20 — Topic 3

November 27 — Topic 5

December 4 — Topic 6

December 6 — Topic 7