

Who says alcohol and cars don't mix?

By COLIN CROMBIE
Two "alcohol guzzlers" are research subjects of the Texas A&M Department of Chemical Engineering.

One is a Mazda Mizer, the other is a Datsun pickup. Both are white and on their doors is the conspicuous legend "Texas A&M University Experimental Vehicle Methanol Fueled." Methanol is also known as methyl or wood alcohol.

Research into a "gasoline-methanol dual fuel system" is being conducted by Drs. W. B. Harris and R. R. Davison.

Harris said their goal was to have a double fuel system, costing less than pollution control equipment while causing less pollution, less engine wear but providing greater engine and fuel efficiency.

The 1973 oil embargo, a decreased price of methanol (because of greater production for industrial use) and an article by Harris and Davison prompted a Washington D. C. committee to look into the possibility of alcohol as an alternative to gasoline, Harris said.

Automobile and petrochemical industry representatives were against the idea, he said.

They want to produce gasoline from coal (if necessary) and they want to use direct carburetion, he said.

But the technology is better and it is less expensive to produce methanol from coal. The modifications to the engine vaporize the methanol before it reaches the carburetor, giving a more efficient process, Harris said.

"Cars don't have to run (completely) on gas," he said.

The research vehicles use both gasoline and methanol. The gasoline is used to start a cold engine and after about a mile it is switched to methanol as the slightly modified engine is then hot enough to vaporize the methanol for use in the carburetor.

The pickup and the Mizer have been converted to run on methanol, the modifications costing less than \$300 each, Harris said.

The pickup has been used for three years and has been driven about 30,000 miles. The Mizer has been used for two years and has covered around 16,000 miles.

The longest journeys have been to New York and to Washington D. C. by way of Florida. A supply of methanol had to be taken along, Harris said the only self-service methanol pump that he knows of is here at Texas A&M.

For a demonstration of the Mizer's performance when using the dual fuel system, Harris drove down University Drive.

Just past Fed-Mart, about a mile and a half from the Zachry Engineering Center's basement garage, he switched from gasoline to methanol.

The change was hardly noticeable and immediately the car began to run smoother with less vibration.

When Harris stopped at an intersection the car idled very quietly with no vibration.

Apart from the important research aspect of putting mileage on the vehicles to show that the engines are not being damaged, Harris said that present research is also concerned with exhaust emission and maximizing performance.

This year's budget for the methanol fuel research is \$10,000, granted by A&M's Center for Energy and Mineral Resources. Harris said the project is being funded modestly by the state.

A donation by John Hawley of the Northern Pump Company started the research.

Although methanol can be made from organic waste containing carbon, surplus agricultural commodities and trees, Harris said that it is cheaper to produce it from coal.

Harris said that the energy crisis can be licked by using methanol, a renewable resource.

"The government doesn't want to solve the crisis, just cut back (gasoline) consumption," he added.

"I believe we may have to go to coal (as an energy source) eventually," he said.

Harris said that he thinks a dual fuel capability in a car is essential from a practical viewpoint as it allows for use of gasoline and methanol separately.

This would be an advantage if methanol were to become a commercial fuel, he said and gasoline alone can still be used as fuel non-commercially.

A dual fuel system has an advantage over the use of a gasoline-methanol blend since a blend separates easily, Harris said.

However, the Methanol Center at the Massachusetts Institute of Technology is working on preventing the separation of gasoline-methanol blends.

But there are too many intangibles involved in predicting how soon methanol could become a commercial fuel, Harris said, as the costs and the risks of large-scale production could prove to be too great.

Methanol presently costs from 32

to 42 cents per gallon. It gives around 15 miles per gallon with half the energy content of gasoline.

"Methanol is a more efficient fuel, a superior fuel to gasoline — no question about it," Harris said.

Although gasoline and methanol are equally toxic, methanol gives off less pollution and smoke than gasoline, Harris said. Harris considers methanol safer since water can be used to extinguish a methanol fire.

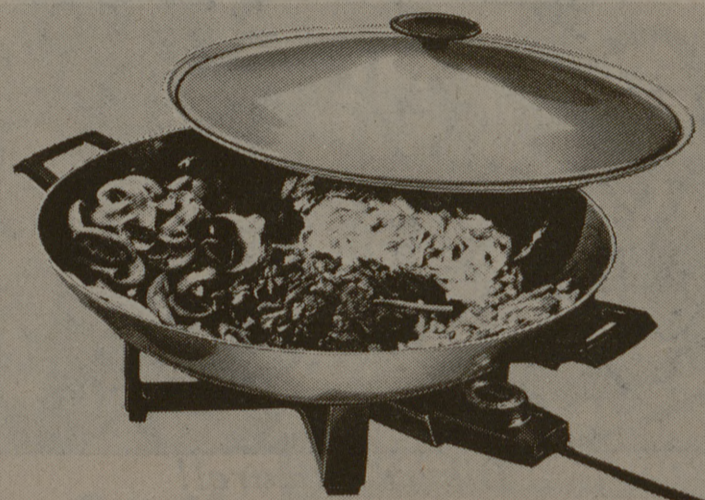
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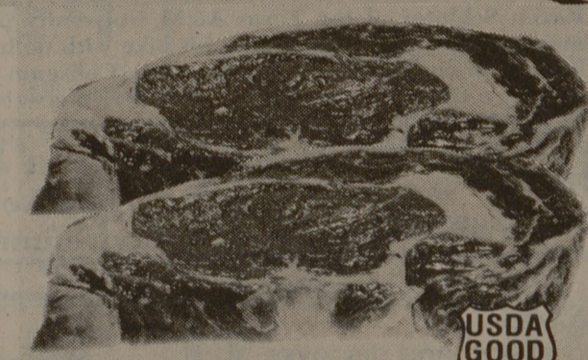
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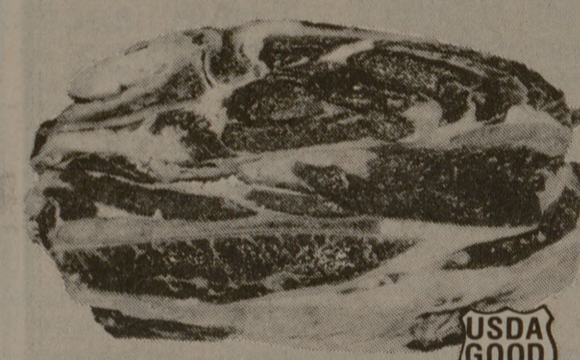
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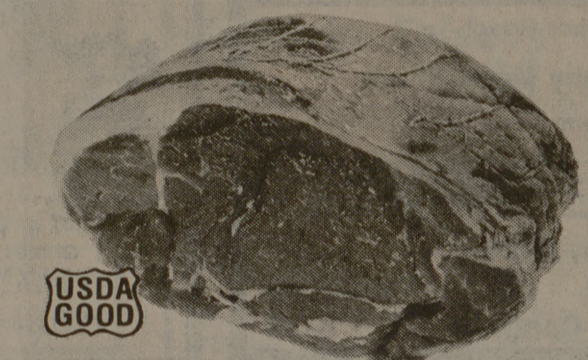
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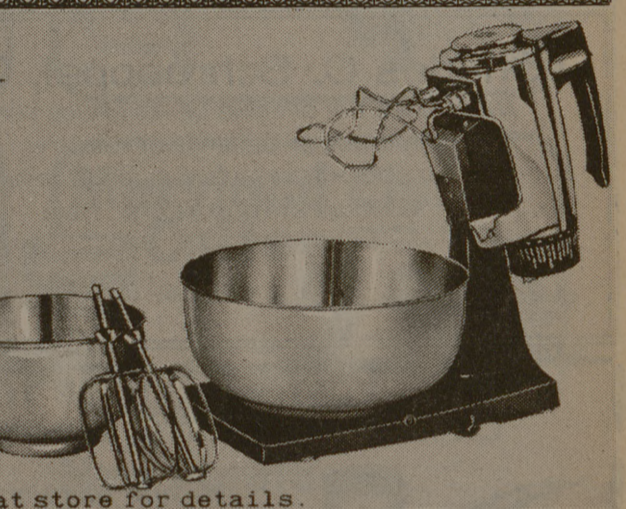
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