



What is the difference?

By **DOUG GORE**

RACE GAS VERSUS PUMP GAS

The word gasoline is about as descriptive as the word sandwich. While everyone knows what a sandwich is, there is no fixed recipe for making one. All gasoline is a mixture of chemicals, sometimes hundreds of them. The pump gas mixture changes almost daily.

Gasoline is primarily made up of hydrogen and carbon atoms (hence hydrocarbons) bonded together in various ways. Pump gas is distilled from crude oil, a decayed biomass, which contains tens of thousands of different hydrocarbons. The exact composition of the refined gasoline varies with the changes in crude batches and is rarely even known. Refineries add chemicals of their own, including detergents and octane enhancers to blend the mixture

into what they want and to meet government requirements. Although it is almost impossible to purchase two identical batches of pump gasoline on consecutive weeks, batches are close enough in composition that the engine in your street car can rarely tell the difference.

Racing gasoline is a carefully controlled blend of specific chemicals that are individually chosen for the application. The proportions of these chemicals are always the same. Very little, if any, street gas finds its way into the mixture. There is little similarity between pump and race gas.

New England Racing Fuel sells Sunoco, Rockett Brand, and Power Mist racing fuels, with Sunoco their best seller. New England Racing Fuel's Mike Joy (yes, that Mike Joy, the TV announcer is a part owner of the company) said, "Sunoco has the longest track record of anyone making racing gas. The Sunoco race gas we sell is refined in a plant that only produces race gas and is owned by Sunoco. It is hauled in Sunoco trucks that only transport race gas. They have total control over the production of the gas from the day it is blended to the day it is put into drums. Their race gas has none of the variability typically found in pump gas because they control it every step of the way."

Rockett Brand also has a lengthy heritage in the racing gasoline business. Rockett's Jack Day, who ran the old Union 76 motorsports program, said, "When Conoco/Philips exited the rac-

ing fuel business, I took early retirement and started Rockett Brand racing fuel.

"As was the case with Union 76, we contract to have the fuel made at a facility owned by Conoco/Philips. We select specific, very pure hydrocarbons and have them blended in a very particular way. We also use additives to make the fuel behave in a specific way. This is all done to our own specs."

VP Racing Fuels' Jay Farnsworth said the differences between pump gas and his company's racing gas, "Of the 70 or so blends of racing gas we currently make, only two contain any street gas. None of our fuels begin as street gas to which we have added other chemicals. We might have some fuels that use a common base stock, but we don't use street gas in any of our race fuels."

A mixture of hydrocarbons that generally fall into one of three classifications is used in blending race gas: aromatics such as toluene and xylene, naphthenes, and paraffins. Certain oxygenates, such as the alcohols, are often added.

Exactly which chemicals and how much of each are used depends upon the application. While the blender's goal is to produce each product as consistently as possible, there are significant composition variations from between products, including those from the same source.

"There are no regulations on what makes a fuel a racing fuel," said Day. "There is no recipe for racing gas and everybody makes their fuel a little differently. So will our fuel perform differently than another fuel? Yes, it probably will. But that doesn't mean that one will perform better than the other."

Joy said engine builders tell him that various engine configurations respond differently to different fuels. "There ab-