

## What Makes Fuel Right So Special?

Fuel additives have a well-deserved reputation as "snake oils." They often make amazing claims - but how do you know they actually do what they claim? In forty nine of our fifty states such products are not required to meet their label claims. The term, "Buyer beware," applies here more than perhaps any other type of product.

We sometimes analyze competitors additives to see why they are so good – or so bad – at doing certain things. It turns out that many additives are mostly just kerosene, mineral spirits (paint thinner), alcohols, or butyl cellosolve (carpet cleaner). That last one is scary – butyl cellosolve is a neurotoxin that can "fry" your brain. These solvent-based products include many of the common brands you see on the shelf where you shop – and, yes, the ones you use and believe in. While we don't know exactly what some people are looking for in a heating oil or diesel fuel additive, the fact that many people think these simple solvent mixtures "work" is a testament to the placebo affect. In other words, if you want to believe that something works, you will see that it works.

The fuel additives made by the big companies that have (or used to have) real chemists on their staff typically consist of more complex ingredients that fall into three categories: dispersants (surfactants), corrosion inhibitors, and, in some cases, biocides. Conventional wisdom in this business says that you need to break up sludge so that a biocide can gain access to the "bugs" that are causing the problems, and that corrosion of steel tanks can be prevented by using any of several corrosion inhibitors that slow down corrosion in water. All of that makes sense on paper – but it has never really worked well in the real world.

What we learned by years of trial and error is that slime forming bacteria (the kind that make sludge happen) are tough to treat with the above approach. They effectively hide from biocides - and can even turn some biocides into food! Even if the above approach worked well, bacteria in the environment tend to develop resistance to biocides over time. Those corrosion inhibitors that work against water don't necessarily work against water and corrosive bacteria.

The only type of corrosion inhibitor that works well in a fuel sludge situation are what are called "filming amines". A couple of the major brands of additives include filming amines - but not at the level needed to do the job. What we also learned is that *certain* filming amines also dissolve the bacterial slime that makes sludge stick together – and that *certain combinations* of filming amines stop the formation of sludge in the first place. We take advantage of these things to use filming amines – at high enough doses – to effectively dissolve existing sludge, prevent new sludge, and completely stop internal corrosion of steel tanks – even in the presence of free water. According to our testing, no other additive (except one particular "biocide that is also a filming amine) can make this claim.

Add to this desired functional ingredients (anti-freeze, lubricant, anti-gel, cetane-booster, etc.) at higher levels than our competitors are willing to put in their formula, and you have the reasons why Fuel Right products are unique in this "snake oil" world.