

With the increased occurrence of microbial contamination in fuel storage tanks since the advent of biofuels, “fuel polishing” is a rapidly-growing service business. Fuel polishing is the technical cleaning process used to remove or filter microbial contamination from oil and hydrocarbon fuel in storage.

Tank Talk asked Dr. Ron Sickels, Vice President of Purification Services for Relevant Solutions, LLC, to answer a few questions about fuel polishing.

Tank Talk: Does fuel polishing filtration stop microbial activity?

Dr. Sickels: Polishing by itself, no. Polishing takes care of other inorganic and organic contamination. We consider water a solid/inorganic contaminant, just like rust or dirt.

Tank Talk: So what is the process to curb microbial activity?

Dr. Sickels: Clean the tanks with the appropriate tank cleaner and fuel cleaners, then use the a well- rounded preservative afterward. And by the way, I suggest that tank owners and operators think of the process as “tank and fuel quality management” rather than fuel polishing.

Tank Talk: What percentage of the tanks that you service need filtration and fuel polishing? And what percentage needs more than one cleaning?

Dr. Sickels: All of them! No tank is ever completely clean. They are all subject to the entry of contaminants such as water, particulates and microbes. And since samples can’t be pulled off sidewalls or endcaps, the correct technique is to manage cleaning the entire tank and polishing the fuel at same time. If you’re performing the process correctly, the corrective action should return the tank and fuel to a clean state meeting

fuel cleanliness standards and specifications.

Tank Talk: On what fuel quality standards are fuel polishing process based?

Dr. Sickels: When you look at fuel production industry standards for the entire fuel life cycle from production to consumption, all have standards for contamination removal. The fuel polishing steps are derived from: identification, classification, prescription of care, control, and prevention.

Tank Talk: Your company offers an “onsite field detection method of microbial activity.” Describe that, if you would.

Dr. Sickels: *FuelStat* is a product developed in England by Conidia Bioscience, and is used as a field verification test that microbes are present in aviation fuel with excellent results. Relevant Solutions is a distributor in the U.S, for FuelStat. It works just as well on other middle distillate fuels.

Tank Talk: Does FuelStat detect *all* microbes?

Dr. Sickels: No, no product can do that outside of a laboratory environment. Don’t misunderstand me here, the laboratory should always be used to verify final results to make sure corrective action has been taken. FuelStat is a tool used in the field that aids in the detections of microbes and allows for the corrective action to be taken.



Fuel polishing: getting rid of bugs

Tank Talk

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Q&A with Dr. Ron Sickels, Vice President of Purification Services for Relevant Solutions, LLC

Tank Talk: How long does the test take? Is it conducted on site?

Dr. Sickels: It takes about ten minutes. Technicians carry FuelStat in the rig and we set up a “mini-lab” on site to perform several tests: microbial contamination; particle count, because ISO 4406 has a particulate standard that all OEM engine makers have adopted; basic water and sediment test; and other tests with our propriety equipment.

Tank Talk: How do I know my tank is cleaned sufficiently using a fuel filtering/fuel polishing method?

Dr. Sickels: By final sampling and testing to make sure the corrective action was completed to industry standards and specifications. The final samples can then be sent a laboratory for verification and we also have the ability to place a camera in the tank to verify cleanliness upon the customer request.

Tank Talk: How is the FuelStat product different from others on the market?

Dr. Sickels: No other product can give a detection reading in 10 minutes. There is other equipment that can perform the test in the field but is quite expensive. Other products take 32-72 hours and/or require sending samples to a lab for analysis.

Tank Talk: Is FuelStat available to all service providers?

Dr. Sickels: It is available. Relevant Solutions is a U.S. distributor at this time.

Tank Talk: What is going on with fuel storage that so many contractors now offer tank cleaning and fuel polishing services?

Dr. Sickels: Today, more than ever, storage system owners are aware of the risks of microbial contamination. For example, the removal of sulfur and the addition of biodiesel creates a better growth environment for microbes. The microbial byproducts such as acetic acid, negatively affect metal components. It’s this kind of problem that has led to a bigger market for fuel polishing services.



Ron F. Sickels, PhD, has 25 years of experience specializing in fuel and tank quality, as a mechanical, chemical, and environmental engineer.

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