

Fuel polishing - the way forward

Whilst some back-up generator suppliers may advise their clients to simply purchase good quality fuel, here WASP PFS highlights the problems with fuel in storage regardless of its initial quality, whilst explaining good fuel housekeeping practices and the latest technologies for saving money.

In January 2011 the EU changed the fuel specification, ensuring all liquid gas oil has a 7% bio-diesel content (FAME). Due to the three Biofuel renewable energy and fuel quality directives, bio-diesel use in fuel has increased dramatically in Europe.

Although the EU aims for more sustainable fuel, the chemical composition of biodiesel causes a number of fuel quality issues, including poor fuel stability, microbiological contamination and an acceleration of fuel decay.

In particular, the hygroscopic nature of biodiesel significantly increases the saturation level, meaning the water content in fuel is well above the maximum specified level. This causes many concerns, which worsen if the fuel tank is outside or not in a temperature controlled environment.

Waxing, sludge, bacterial infections, sediments and other foreign matter all cause issues; however it is water in fuel which is at the root of microbial growth.

These microbial contaminations can lead to corrosion of pipe work, cause fuel blockages and cause damage to the tanks and the engine's injectors. Furthermore the lack of lubricant in biodiesel decreases engine efficiency.

This increases the temperature, causing component wear, wasting electricity and potentially damaging the quality fuel as well.

This can lead to back-up generator failure when it's running during an emergency situation. All generator suppliers suggest testing the units on a weekly/monthly basis; however these tests do not pick up on the issue of poor quality fuel.

The fuel must be laboratory tested (ideally every 6 months) and the fuel quality should be closely analysed. UK fuel testing laboratories and companies like WASP offer this service. If a test reveals the fuel is out of specification (has contamination), in most cases a fuel polishing process can resolve the issue.

Fuel without biodiesel naturally decays, and could be out of specification after 6-12 months. However, bio-diesel causes fuel to decay much faster than mineral based fuel (with pure biodiesel decaying after a few weeks).

It is therefore recommended blended fuels are only stored for up to 6 months to reduce contamination issues.

To prevent fuel contamination occurring, WASP PFS Ltd and the CONCAWE group suggests applying strict 'good fuel housekeeping' practices to ensure these challenges

are controlled and prevented. These practices include purchasing good quality fuel, using a fuel polishing process and testing the fuel every 6 months. Furthermore, using a fuel polishing process can prolong the usable life of fuel.

Fuel polishing is the innovative technological cleaning process used to remove water, bacterial infection, sludge, and solid and semi-solid contaminates from diesel and similar middle distillate fuels (gas and fuel oil, MDO, etc.).

The design of the systems aim to maintain optimum fuel quality in diesel when stored for the medium to long term; preventing the fuel causing generator failures during an emergency situation.

Those organisations which invest in generators to ensure complete continuity, need to consider backup generator failure as part of their business continuity plan.

With reports about the 2% slack in the system causing unplanned blackouts and power cuts, it is essential for organisations to start thinking about ensuring their generator is supported.

Currently blue-chip organisations, data centres, yacht builders, generator suppliers, hospitals and the military all invest in fuel polishing to ensure complete continuity.

Furthermore by ensuring the fuel in storage is kept in optimum confusion, a large saving in potential carbon emissions can be had.

Without fuel polishing, the alternative is to dispose of your fuel, at a cost both in monetary and carbon terms. Moreover, more fuel will need to be produced, purchased and delivered to your site – again, a large monetary and carbon emission cost.

By utilising the efficiencies of a fuel polishing system, all of these costs can be avoided.

WASP customises their systems depending on the customers' fuel flow rate, tank size, required features, specifications and design needs.

A fuel polishing system costs significantly less than a replacement tank of fuel; it increases efficiency and power, reduces costs, reduces carbon emissions and benefits the environment.

With 21 years of experience and expertise, WASP's systems are designed using the latest unrivalled technologies, unique control systems and advanced sensing systems to ensure simplicity and efficiency as well as maximum protection against fuel-related breakdowns.

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