

Fuel in a cold climate



TO ENSURE MODERN DIESEL FORKLIFT ENGINES OPERATE OPTIMALLY IN WINTER CONDITIONS, IT IS MORE IMPORTANT THAN EVER THAT TRUCK OWNERS ENSURE THE RIGHT FUEL IS BEING USED AND THAT IT IS STORED CORRECTLY THROUGH THE YEAR. BITA'S TECHNICAL CONSULTANT, **BOB HINE**, EXPLAINS MORE.

■ To keep your fleet operating at maximum efficiency, with minimum downtime, effective fuel storage and tank maintenance is vital ■



I'd like to begin by wishing all SHD Logistics readers a very happy and prosperous

New Year – but with a new year comes winter and without proper preparation there can be a real threat to the prosperity we all wish ourselves in 2016.

The worst of the winter weather is just around the corner now, and incorrect storage of fuel, with the potential for contamination, can create real problems during cold weather operation. Add into the mix the need to ensure that the correct grade of fuel is being used, particularly in relation to biodiesel and ultra-low sulphur diesel (ULSD), and it could mean a winter of risks.

Key causes of contamination can include:

- Water in fuel;
- Particle contamination/poor filtration;
- Extended storage periods;
- Diesel microbial contamination;
- Irregular tank maintenance.

Because up to 7% biodiesel can now be included in UK gas oil/red diesel, and biodiesel blends can absorb more water, this can precipitate out of solution when the temperature changes. This in turn can create the conditions for microbial contamination, the so-called 'diesel bug', leading to possible sludge problems.

Biodiesel also oxidises and breaks down more easily, creating peroxides that can form acids, creating the risk of gums and resins which can block filters.

Fuel can also be contaminated with dirt, rust, sand etc which can be the result of simple and avoidable bad fuel handling practices and cause real damage to an engine or machine and its fuel system. However there are a number of straightforward steps which can be taken to address these problems.

- Buy your fuel from reputable sources. This will prevent the likelihood of microbe, water or particulate contaminant problems. A reputable fuel distributor turning over high volumes is more likely to be on top of preventing these problems;
- Maintain your tanks. Tanks need maintenance – there are treatments available to prevent water accumulation, but no additive can overcome a rusty tank that allows rain water in;
- Keep tanks full to minimise the development of condensation
- Limit storage time. Ideally diesel should not be stored for more than 12 months;
- Control the temperature. Fuel shouldn't be exposed to temperatures above 35°C;

- When moving fuel, run it; through a filtration system
- Test regularly for microbes and water. This will help you stay on top of stored fuel problems;
- Every 90 days use biocides to prevent microbial contamination, especially with ULSD.

Another issue that can cause problems, both for modern diesel engines designed to meet the latest emissions legislation, and older engines designed to previous specifications, is ensuring that the correct grade of fuel is used.

Engines designed to run on 'European' grade diesel, with a cetane rating of 51 (the cetane number relating to how readily diesel burns under compression) can struggle to run effectively on UK red diesel, with a cetane level of 45. The advent of ULSD can also mean a reduction in the 'oiliness' of fuel, meaning lower 'lubricity', which can potentially be an issue if used in older engines which were not designed for ULSD.

For some engines, fuel containing 7% of biodiesel can result in reduced cold-weather handling performance and greater potential for water pick-up, meaning a great possibility of corrosion in filters. This has led to some suppliers offering so-called 'FAME-free fuel' which claims to be biodiesel free. However this is extremely difficult to guarantee, given how widespread biodiesel is in the supply chain, so relying on this has potential problems.

To keep your fleet operating at maximum efficiency, with minimum downtime, effective fuel storage and tank maintenance is vital. If this is matched with adherence to the fuel grade needs of your fleet, be it brand new or of a less recent vintage, it will help ensure that the winter weather won't stop your business in its tracks – and that you have the prosperous New Year we all wish for. ■

OTHER GENERAL MAINTENANCE TIPS

Alongside correct fuel and fuel storage protocols, general vehicle maintenance tips to assist efficient operation include:

- Observing the manufacturer's fuel filter service life recommendations, particularly around frequency of replacement
- Daily draining of water from fuel filters
- Replacement of a vehicle's fuel filler cap immediately after refuelling