L.H. COOK PLUMBING & HEATING LTD FACTSHEET LHC-FS036

Water contamination in Oil tanks and integral bunds

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If your Oil tank has water in it then it should be removed at the earliest opportunity. If you are a tenant, you should also contact your landlord or letting agent to inform them.

Water can often be found in the bottom of Oil storage tanks and occasionally within the bund as a result of condensation, open tubes on sight gauges, fuel deliveries in wet weather, the ingress of rain and snow and associated water from melting snow or ice through vent pipes, missing or poorly fitting lids and seals. **There is no minimum/ maximum or acceptable level of water.** If ignored, water levels can build up sufficiently to enter the fuel line which will cause damage to burner components, affect combustion or could freeze in the winter blocking the oil tank outlet or fuel supply pipe.

Bacteria in fuel (also known as the diesel bug) can be found at this level between water and fuel and can grow until the entire contents of the tank are affected, diesel bug cells can multiply 2 million times in 24 hours and die within 48 hours falling to the bottom of the tank as sludge. Microbial sludge is also produced which causes problems with blockages in fuel filters and supply lines. **With time a highly corrosive by-product can be produced which is similar to hydrochloric acid**; this can corrode through steel oil tanks and degrade certain organic storage tank linings, oil lines and equipment, as well as affect certain types of seals within the fuel supply system. **Water contamination can also cause degradation of the fuel hydrocarbons** and will result in a loss of calorific value of the fuels and therefore **increased fuel consumption.** Whilst standard methods of water removal is necessary and the most commonly used practice, it is not always possible to remove all of the water and contamination present, nor will it remove water held in suspension meaning some fuel must be disposed of as well as the water collected. Fuel Conditioning or polishing is a process that not only removes all water and contaminants from the tank but also removes suspended water and contamination down to minimal levels without the removal or disposal of any of the fuel itself.

Water within an Integral bund can also cause problems, if it freezes around the internal tank it could possibly split the tank or weaken it due to expansion of the ice. There is also the possibility that when the fuel supply is low the inner tank can float on the water within the integral bund which could cause damage to the internal connections of the fuel supply and may damage the tank itself.

Occasionally fuel may be discovered inside an integral bund. It could be due to spillage during a delivery, but could also be due to a leak within the internal tank. If fuel has been discovered, then close regular inspection will be necessary to ensure the inner Oil tank is not leaking.

It is important that water is removed from the Oil storage tank facility and disposed of accordingly. Although some literature states that the wastewater can be disposed of down a main sewerage drain providing there are no signs of fuel being present; there is still the possibility of contamination by organic acid by-products or some biocides used to treat the problem. Disposing of anything like this must be met with utter caution as you can be fined for contamination of sewerage systems and water ways for failing to dispose of anything in the correct manner. According to the Environment Agency, this water is classed as hazardous or contaminated waste and should be disposed of accordingly.

Biofuel may contain small but problematic quantities of water, although it is hydrophobic (non-miscible with water molecules), it is also said to be hygroscopic (has the ability to attract and retain water molecules from the surrounding environment and atmosphere through either absorption or adsorption). Therefore, before using biofuels you must ensure your fuel tank is clear of water and sludge and ensure that the tank is kept free of water whilst storing the fuel.
Red diesel (Gas Oil) contains up to 7% biofuel and although Kerosene should not contain any Biofuel, the changing chemical composition of modern Kerosene means it has the ability to absorb more water than ever before; and as the fuel warms within the Storage tank in the summer months the absorption rate increases further. To make matters worse some additives supplied by Oil companies have properties similar to Biofuel and are sold to “clean” your tank but can cause major problems if there is any reasonable quantity of water or sediment etc., in the tank. Therefore, before using any additives that have a “cleaning” effect, water and sediment should be removed from the Oil tank.
To remove small quantities of water or to try to prevent small amounts of new water settling within the tank, a water absorbing product can be purchased and fitted inside the oil tank; however, this cannot be used to remove larger quantities of water and it must be removed manually and disposed of accordingly.