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Diesel Bug

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COOKING AFLOAT

Vicky makes a lemon seed cake, which goes down very well with a spot of gongoozling





Tank trap



Do you know what's really lurking in your tank and how it got there? If not, read on

WORDS AND PICTURES BY NICK WALL

It's a bit like getting a cold or flu, really. If you get a bit of a cough and splutter from your engine it might not be anything much to worry about, just a bit of air or muck working through the system, but if the engine refuses to get out of bed and get going,

then the chances are you really have caught a bug.

In this case, it's diesel bug, a topic we've covered many times here at *CB* with good reason – it's a growing problem (literally), and with some boats being woken up from their winter slumbers, it's no surprise that some might not be

feeling at their best at this time of year.

That's because the problems with diesel bug often start with storage and, if you think about it, any boat that has been left over the winter has effectively simply been storing fuel in its cold, dank tank, which is not the best place to keep modern fuels for any length of time.

Diesel is expected to be used, on average, within 18 to 24 days from leaving the refinery, so oil companies are generally not under pressure to produce a fuel capable of being stored long term. Studies by the University of Idaho have apparently concluded that the contamination and degradation process of stored diesel can be well underway within 28 days of storage with fuel showing 26% degradation at this point.

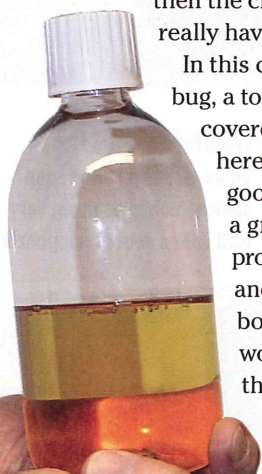
In reality, contamination begins as soon as the tanks are filled and continues until the fuel is used. Without preventative measures such as additives, the longer the fuel is stored, the higher

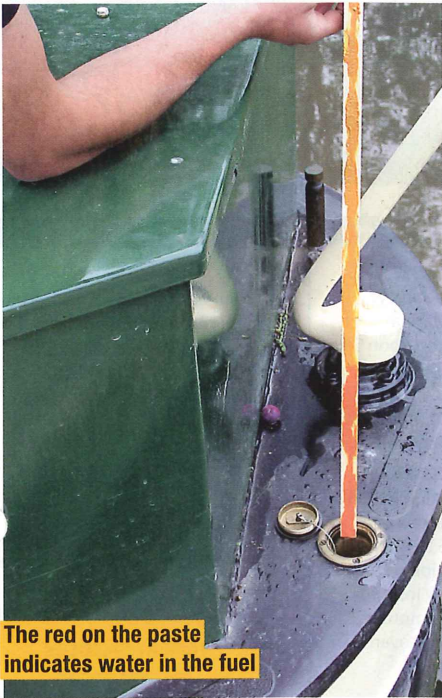


And there it is in all its horrible glory....

the probability of fuel degradation. There are many contributing factors, including oxidative breakdown from exposure to air and light, hydrolytic breakdown through exposure to water and catalytic breakdown from exposure to certain metals. As far as diesel bug goes, it's the hydrolytic breakdown and build-up of water in the tank that we're really interested in.

Hydrolytic degradation, as its name suggests, results when water finds its way into the fuel tank; this can be through oxidative breakdown,





The red on the paste indicates water in the fuel

for you to get water in the fuel. The trouble with this is that, apart from the obvious issue of it potentially corroding engine and fuel parts with tight tolerances, diesel bug loves water. Contrary to popular belief, diesel bug isn't one organism, but the collective name given to describe the bacteria, moulds and yeasts absorbed from the air.

These microbes attach themselves to any water droplets they can find, multiply and fall to the bottom of the tank and feed from the fuel. They double in number every 20 minutes and live for around 18 hours excreting waste before dying and leaving the all-too-common sludge at the bottom of the tank. It's this sludge that blocks filters, stops engines and can even corrode steel tanks. It can render fuel useless.

Today's ultra-low sulphur fuels are



You really don't want your fuel like this

Testing kits are available

designed for our more environmentally friendly world and more susceptible to microbial infestation because sulphur is a natural biocide and its removal has contributed to the increase in the occurrence of microbial infestations.

So, what are the first signs that your fuel might have degraded or that you've gone down with a real bug? Normal diesel (if not coloured red) is an amber-green that begins to darken as it degrades. The heavier components of it are no longer dissolved and become detached, floating freely, tank sediment increases and eventually you'll have trouble starting the engine, rough running, black smoke, reduced revs and frequent stalling due to fuel starvation from clogged filters.

There is a wide range of fuel tank additives that will deal with it, both enzymes and biocides, but they will only deal with the fuel you dose at the time, so next time you fill up, you have a whole new tank of fuel with some water. There is, of course, fuel polishing, too, which will not only clean the water and muck from the fuel but also residual muck from the tank.

However, there's only one sure way to ensure you do not get diesel bug issues, and that's simple – remove the water from the fuel, fit a water separator if you don't already have one, and stop it getting in the tank.

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condensation forming on the steel walls of the tank if it's not kept full and some water can even be present in the fuel itself – and how good has the seal been on your filler cap during the winter rains?

What makes the situation even worse is that bio-fuel now makes up 12% of the European standard (EN590) for diesel and it is hygroscopic, absorbing 30 times more moisture from the air than the traditional fuels, so yet another source

'So what are the first signs that your fuel might have degraded or that you've gone down with a real bug?'

THE DIESEL DOCTOR'S PRESCRIPTION

ONE OF THE major diesel bug treatments has recently been bought by Peter Weide, of MarShip UK, and Steve Cox, owner of SEIP Services, and we went to have a chat with Peter about the whole diesel bug issue on which this article was based.

You might expect him to either be a bit of a boffin or a slick salesman – but he's neither; in fact, he writes a column under the nom de plume The Diesel Doctor in *The Skipper*,

a magazine for trawlermen. Peter served as a marine engineer on ships for 30 years, finishing up as Chief Engineer. When he came ashore he held a number of posts with large companies involved in shipping before starting MarShip, based in Tetbury, Gloucestershire, in 2010 to supply air, oil and fuel filters for, not surprisingly, shipping companies. Now he and Steve have just taken over Marine 16 as part of developing the business further.

