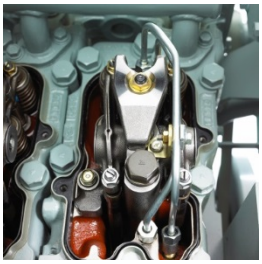
Save Your Injectors with Flexible & Simple Diesel Purification!

The bottom of a diesel tank, heavy microbial growth

Diesel tank contaminated due to dirt, sludge and water



Components like injectors and pumps require clean diesel for optimum performance

Increased system component and oil lifetime, virtually no unplanned stops and no cleaning of oil tanks are results that most skippers and engineers can only dream of. This does not have to stay as a dream. Experiences from commercial freight vessels, ferries and fishing vessels show that these results can be achieved with proper maintenance of oil systems.
The concept of oil care includes only few modifications of the oil systems and requires less maintenance and surveillance by the skipper or engineer. By selecting a diesel purifier with variable flow control, you will save on energy consumption by adjusting the fuel flow and filtration efficiency according to actual demands.

Present Challenges on Fishing Vessel Engine Reliability

The most common reason for engine failure is contaminated diesel. The contamination could lead to a large number of problems – ranging from wear and tear, cavitation damages, corrosion, clogged filters and ultimately to a complete engine stop. The contamination of diesel is very often caused by microorganism – also known as diesel bug. Diesel bug is a result of microorganism in the diesel. It can be bacteria, yeast, fungus or others, but, no matter what, they all thrive on organic material (as diesel), moist or water and at certain temperatures. All of which, are present in the diesel tank of the fishing vessels.
There will be even more when it comes to the use of biodiesel, where you actually add different kinds of organic material to the fuel formula. This may be beneficial to the environment, but adding organic material may influence with the lubricating ability of the diesel and will definitely stimulate the growth of different bacteria.

New Oil is not Clean

A clean tank and piping system is no guarantee for clean diesel. Tests may indicate water and/or particle contents, but microorganism may not be indicated. Diesel bug can develop in the tank as a result of moist air, free water in the diesel and high temperatures. It can also enter the tank via a contaminated filling system or contaminated land storage facilities. When bunkering diesel, you may, in fact, take on contaminated diesel. We see a trend that new oil is even dirtier, contaminated with both water, particles and asphaltenes (tar). The oil is contaminated during the supply chain, where oil is being transferred from tanks to tankers and then to drums, where diesel might be transported in containers previously used for heavy fuel. Once in the tank, the diesel bug can be very costly to get rid.

Impact of IMO Requirements and Low Sulphur Diesel

Fishing vessels' skippers and engineers will also face serious challenges in the future from new demands on diesel quality and engine performance in order to reduce emissions. The

challenges could i.e. be addressed with new engine constructions like the common rail diesel or by using low Sulphur diesel. Both solutions will enhance the need for absolute clean diesel. Engine types with high pressure injection systems operate with considerably smaller tolerances and are consequently more sensitive to even very small particles in the diesel. The use of low sulphur diesel may reduce emissions but the sulphur content is also an important part of the lubricating features in the diesel, and with less lubrication, any contamination of the diesel obviously may cause serious damage to engine parts.

Consider Your Equipment

There are various parameters that have to be considered when looking for equipment to clean diesel.

The first diesel filter we meet in the vessel is the in-line spin-on filters on the engine. These filters are supplied with the engine and are usually filtering the diesel between the engine fuel-feeding pump and the injection nozzles. The fineness of these filters varies from 10 to 25 micron and they are always pleated surface filters with very low dirt holding capacity. The fineness of 10 to 25 micron will result in removal of up to 10% of the particles in the diesel. According to the analysis of the distribution of particle sizes in diesel shows, that only 10% of the particles are larger than 10 micron.

Hence, the small particles, <10 micron, constitutes up to 90% of the particle contamination in the oil. The tolerances in feeding pumps and nozzles are smaller than 10 micron and the particles fitting into these tolerances are those creating the wear and tear and, in worst case, an immediate breakdown. If you frequently change nozzles on the engine, then it could be due to your diesel cleaning system is not removing the small particles.

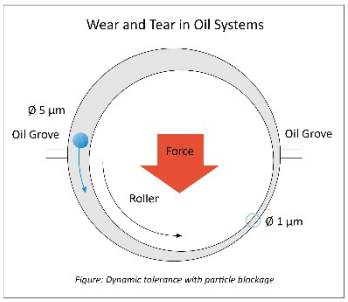


Figure: Dynamic tolerance with particle blockage


"Atlantic Enterprise" with CJC™ Oil Filters installed

You need to go Offline to have completely Clean Diesel

Some fishing vessels operate with several tanks with oil centrifuges, water separators and inline filters to clean the diesel before entering the day tank. These measures may – provided they are operated correctly - work to some extent when it comes to the removal of water and smaller amounts of particles, but they will have little or no effect on the microorganism. Furthermore, you never actually know the effectiveness of the centrifuge. In order to have absolutely clean diesel, you need to remove all particles, all water molecules and the microorganism causing diesel bug. The solution is to go offline… You need an offline diesel purifier unit with a large capacity and the ability to remove microorganism, particles and as well as water.


Mr. Per Svenningsen, Tech. Manager at Ocean Prawns A/S States: "Clean oil is crucial and CJC™ Oil Filters are simple to operate and reliable systems

Easily installed and very simple to operate

The Danish company, C.C.JENSEN, has manufactured offline oil filters and diesel purifier for more than 60 years. They offers a state-of-the-art and well documented solution for clean diesel. The CJC™ Diesel Purifier is easy to install and is well suited for new builds as well as retrofitting. In fact, it is possible to install the diesel purifier using the same pipes and connections from the centrifuge. The CJC™ Diesel Purifier is extremely simple to operate, making it the perfect solution in a busy working environment on a fishing vessel.

As a standard, the diesel purifier is fitted with Variable Flow Control, which results in energy savings as you can adjust the flow whether you are operating at sea or harbour. With flexible power supply, you can supply your diesel purifier with 230-690 VAC. Equipped with a leak-detector, the diesel purifier will shut down in due time when there is a leakage or spill. The inserts in the diesel purifier can be easily replaced and disposed off. The diesel purifier will take away the pressure on the in-line filters and reduce the unnecessary in-line filter insert changes.

CJC™ Marine Diesel Purifier with Variable Flow Control

Large ship owners rely on C.C.JENSEN A/S

The CJC™ Oil Filters prove their efficiency every day all over the maritime world. More than 70 percent of the Danish Fishing Fleet are equipped with a CJC™ Oil Filter solutions, ensuring them clean diesel and reliable engine performance all year round.

For more info on the new CJC™ Marine Diesel Purifier - cleaning and purifying systems - call Gustav Hans Frederiksen, C.C.JENSEN A/S, Denmark, ghf@cjc.dk, +45 4121 7308 or Natasha Knudsen, C.C.JENSEN A/S Denmark, njk@cjc.dk, +45 2222 2964