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#### Fitch Catalyst Trials:

We decided to use our portable generator set to test the fuel catalysts for their performance functionality. The benefit of using this generator set, which has a very low amount of running hours, with a minimum amount of carbon built up, is that we can reduce significant number variables compared to testing on board of our vessels. During testing, the Generator Set is running with fixed load, using a resistive load-bank. The cost to perform the evaluation, not including the fuel cost, is the purchase price of fuel flow meters and the necessary fittings, and the rental of the load-bank. The Gen set is a John Deere 6081TF001, 181HP engine.

The product we tested was a fuel catalyst by Fitch. This product conditions the fuel as it passes over the catalyst. The life of this catalyst is 10,000 engine hours. According to Fitch: The fuel catalyst reformulates fuel prior to combustion, preventing oxygen and most diseases from attacking the fuel and reversing any degradation that may have occurred prior to the fuel being introduced to the engine. The Fitch fuel catalyst assists the combustion process by insuring that fuel is highly uniform, potent, consistent, and stable.

#### The Trial Result:

The Fitch unit was installed after evaluation of the base line. I noticed a difference in engine sound almost immediately after startup with the Fitch catalyst inline. It is my opinion that the engine sound was reduced, although I had no means to quantify this finding (Db Meter). Also, I noticed that the fuel consumption under testing load was about 5% reduced compared to the base. I continued the testing for 8 hours and the savings stayed between 4 to 5%. After 8 hours, we disconnected the Fitch catalyst to validate the savings by re-establishing the base. According to Fitch, the fuel remaining in the tank was partly conditioned by the Fitch catalyst. The savings result with the partly conditioned fuel without the Fitch catalyst, was between 2 to 3% versus the 4 to 5% with the Fitch catalyst and the effect occurred immediately after startup under testing load condition.

#### Conclusion:

The Fitch catalyst has shown great potential. The 4 to 5% reduction of fuel consumption on the generator set would equate to about an annual 1.5 M gallons fuel savings for the Ton vessels

(based on average fuel consumption over the last 5 months). We purchased three (3) Fitch catalysts to be trialed on one of our vessels. Two of the catalysts will be used to treat the fuel to the main engines. The third catalyst will be placed in-line with the centrifuge to treat the fuel pumped from the bunkers to the day-tank, which include the treatment needed for the generator sets. This catalyst will treat the fuel for any potential bacteria issue prior to the day-tank.

#### Trial on Vessel:

This vessel has fuel flow meters on the main engines. We have monitored the fuel consumption for the last couple of months to develop a good base line prior to the installation of the Fitch Catalysts.

#### Initial Result:

We have seen a fuel savings overall of 10%. Also we noticed a significant reduction in the opacity of the exhaust gases.

#### Next Phase:

- Continue to monitor the performance of the Catalysts on this vessel.
- Select another vessel with different main engines to trial the Catalysts.



Main Engine



Day Tank