Microbiological contamination

A small, gas oil burning, vessel bunkered 30 tonnes of gas oil at a North Sea port. The company's policy was not to test gas oil before use. After 10 hours burning the new fuel the in-line fuel pressure dropped from a usual 2.2 barg to 1.5 barg. On instruction from the Chief Engineer the engine was stopped, and the pre-filter examined. This was found to be coated in a jelly-like material. The Chief Engineer reported that filter cleaning needed to be carried out every 3 hours after the initial incident.

The vessel was on a coastal trade and on berthing, the main engine was shut down. On restarting all 8 fuel pumps were found to be seized and the injectors were not atomising properly.

A Lintec surveyor attended the vessel and took samples, witnessed by the supplier's representative, from the bunker and day tanks. Visual examination showed a pale brown fuel with a moderate amount of suspended, soft brown material.

A large number of water drops with entrained fine, brown material, and larger, irregular, brown-black particles were visible, settled at the bottom of the sample container.

High water content and microbiological contamination were suspected as the cause of the problem.

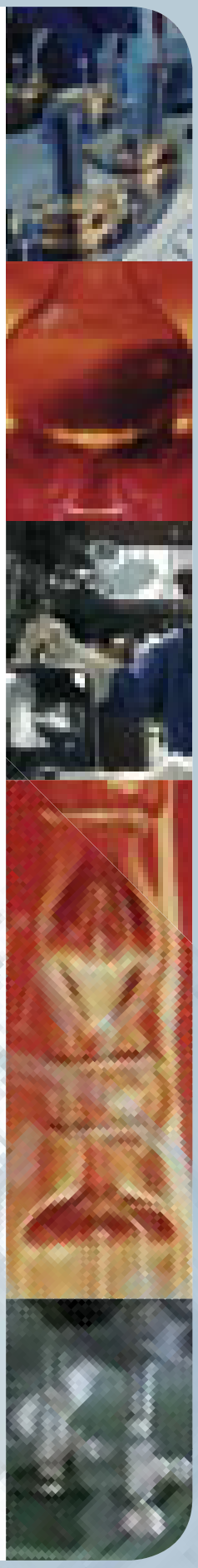
Microscopic examination revealed particulates and water drops from the bottom of the sample container contained polymeric material, which had the typical appearance of that produced by microbes. A large number of fungal fragments, including some large clumps, plus bacteria and amorphous organic particulate, were also observed.

The water content of the fuel was found to be excessive.

High levels of bacteria, yeasts and moulds were identified.

Based on the levels of biological contamination identified, a biocide treatment was recommended before new bunkers were taken and machinery repairs completed.

The supplier accepted that off-specification bunkers had been supplied, and the problems were traced back to the supply barge.



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