



CHINA NAVIGATION

R&D to achieve Radical Decarbonisation of the Shipping Industry



Photo right:
Argent supplied 40m³ of BFO to MV Wulin at a deviation port call in Rotterdam

Bio-Fuel Oil

Argent Energy, which is part of the Swire group (argentenergy.com), produces sustainable biodiesel to combat climate change. Argent converts cooking oil and waste fats, otherwise polluting the environment, sent to landfill or poured down drains (causing blockages known as fatbergs), into environmentally sustainable fuel.

Argent developed a drop-in replacement Bio Fuel Oil (BFO) derived entirely from waste-based sources for the IFO/HFO usually used in marine slow-speed 2-stroke diesel main engines. Greenhouse Gas (GHG) savings equate to 3.6t per tonne of fossil fuel displaced by the BFO (EU calculations) and has a sulphur content of 0.05% compared to 1.5 – 3% of sulphur of HFO. CNCo ran two R&D trials (phases) using Argent biofuel with the following results:

Phase 1

The running of the Wärtsilä Test Bed RTX-6 engine in Winterthur on Argent BFO for 57hrs.

Result Complete. Successful Winterthur Gas and Diesel ('Win G&D') took over the 2-stroke engine division of Wärtsilä in 2015.

Phase 2

CNCo worked with Argent Energy and Win G&D to continue scaling up this project and conducted a small scale (3 day) field test on CNCo's B.Delta39 bulk carrier *MV Wulin*.

Result

The engine ran for 23 hours, showing good performance until a major fluctuation in the fuel pressure caused a gasket on the fuel to burst. The incident was contained and engine fixed using spare parts delivered to the vessel prior to the trial.

Photo right:
Engine room of MV Wulin



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Project Impact:

While further R&D work is required, positive environmental impact could be achieved by using fuel from waste on ships. It will significantly reduce CO₂ / GHG / NO_x / SO_x / Particular Matter emissions into the air, together with savings from waste to landfill.

Relevant Sustainable Development Goal

