11/5/2014 Muradel



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# **Production**

Green2Black<sup>TM</sup> Muradel's Integrated Biofuel Technology is a 5 step process for the production of renewable transport fuels.

### Step 1: Primary production

Muradel propagates robust microalgae strains in shallow, salt-water ponds. On a per area basis the system is far more productive than traditional biomass crops, and Muradel has demonstrated year-round microalgae growth at scale over several seasons with full recycle of media.

#### Step 2: Harvesting and concentration

Muradel uses a patent-pending, energy-efficient electroflocculation method to continuously harvest and thicken the microalgae from its large ponds. A dewatering step further concentrates the microalgae into a thick, flowable slurry.

### Step 3: Conversion to hydrocarbons

Feedstock is converted in minutes to a mix of hydrocarbons in a sub-critical water reactor (SCWR) via hydrothermal liquefaction. Muradel's patent-protected reactor requires no catalysts, operates continuously, and is energy efficient, cost effective, durable and feedstock flexible.

#### Step 4: Extraction

The output of the reactor is a product called "kerogen", from which Muradel extracts the hydrocarbons and produces its green crude using purpose built systems.

## Step 5: Fractionation

Using off-the-shelf technology, Muradel's green crude can be fractionated into the normal range of finished fuels that are infrastructure- and engine-compatible.









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Latest News

- USA legislates to include algal feedstock under Section 40
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