



Mitigation of Greenhouse Gas emissions from any source of energy including fossil fuels, methane and biomass... using ALGAE!



HY-TEK Bio's Greenhouse Gas mitigation uses unique patent-pending technologies

Bioreactor Inputs

Flue Gas – 100 scfm per bioreactor @ 11.8% CO₂ & 130 ppm NO_x

Flue Gas Temperature – 800F Stack Temperature – 80F Bioreactor Temperature

1,800 Gallons per bioreactor – filtered and recirculated with 5% water loss due to photosynthesis

Nutrient Requirements - 100 Gallons of proprietary nutrient per bioreactor per day

Power requirements – 180w (LED Grow Lights) and 1.5kW (Air Injection)

Bioreactor Outputs

Algae (Strain s.HTB1)

Culture Density – 3-5grams/Liter

Production – 50-75 lbs/day

Oxygen (O₂)

Production – 8.5 cfm 90% O₂

Residual CO₂ – 0

Residual NO_x - 0

Other residuals - 0

Other Requirements

Protective Building Shell

Building Lights, Heat & A/C

Bioreactor LED Grow Lights

Air Compression (Flue Gas Injection)

De-watering and Spray Dryer

labor requirements – 2 persons per 100 Tanks

Ten (10) % harvest of each tank every 90 minutes

Automation Control System

Operation – Given light, water, nutrient and CO₂, the algal culture will grow by consuming flue gas until it reaches an optical density where the light can no longer penetrate the core of the bioreactor. At this time, the optical density sensor alerts the control system to open the bioreactor valve and drain 10% of the tank into a Settling Tank. A bacterial aggregation agent will de-water the culture in the Settling tank to a slurry. The excess water in the Settling tank is drained off, filtered, nutrient added, lost water added then returned to re-fill the bioreactor. The algal slurry is pumped through a spray dryer, converted to powder, vacuum packed and stored for shipping. This occurs every 90 minutes, mitigating 100% of the Greenhouse Gas emissions from the facility and producing 50-75 lbs of algae and 12,000 cubic feet of oxygen per day for sale.