Supercritical MeOH Extraction/Conversion One-step extraction conversion process for algal biofuels

OCR Number: OCR 6012

Description:

We have developed a more energy-efficient biodiesel production method from algae using a supercritical methanol system.

Product Description

Current production of biofuels from algae is hampered by the energy required to separate algae from water (via mechanical or chemical methods) and the wasted energy required to grow non-fuel parts of algae.

Yale has developed a technology that addresses these issues by providing an efficient system and single-step method for the extraction and transesterification of lipids from algae. The advantages of this system include the following:

1. By combining extraction and conversion in a single step, this process uses **70% less energy** than the previous methods.

2. Drying the algae feedstock is not necessary.

3. The output biodiesel product is the same as plant oil-based biodiesel.

4. A single procedure can be used to yield **high-value byproducts**, such as pigments and sterols, without the expense of normal purification protocols.
The one-step extraction process can be integrated into existing operations and provide a significant advantage in cost-competitive production of algae-based biofuels.

**Licensing Contact:** Richard Andersson  
richard.andersson@yale.edu