

Microalgae-to-Biofuel B-Roll

Scene-by-Scene Description

Get the facts behind the footage available on the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) B-Roll Web site at eere.energy.gov/news/b_roll.cfm.

Video Title: Microalgae-to-Biofuel B-Roll

Video Only/No Audio

Location: National Renewable Energy Laboratory (NREL), Golden, Colorado

Shoot Date: September 24, 2009

Total Running Time: 4:42

Scene 1: 00:05: Researchers study microalgal strain growth in a “raceway” tub at NREL’s greenhouse facilities. This small-scale cultivation environment is a transition growth stage between flasks and a full-scale “farm.”

Scene 2: 01:07: Scientists monitor microalgal cultures grown using photobioreactors that produce photosynthesis in a controlled-light and -temperature environment.

Scene 3: 02:11: Microalgae strains grown in flasks and on Petri dishes in a temperature- controlled light room. These strains come from unique aquatic environments. This helps isolate, purify, and identify the most efficient lipid (oil)-producing organisms.

Scene 4: 02:37: An NREL researcher analyzes algae samples for oil content. This process uses Fluorescence-activated cell sorting, a unique technology patented by NREL.

Scene 5: 03:04: A scientist conducts a microscopic examination of microalgae strains for lipid production. NREL researchers are working on technology that will provide valuable spectroscopic data for detailed analysis of microalgae energy absorption and storage.

Scene 6: 03:41: Cryopreservation (-196 Centigrade) of NREL’s microalgal collection for long-term storage of biological diversity.

Learn More about Microalgal Biofuel

The U.S. Department of Energy’s National Renewable Energy Laboratory (NREL) studies the fuel-producing potential of microscopic algae, a single-celled organism that naturally and rapidly produces large amounts of lipids (natural oils). Algae also consume CO₂, a significant and environmentally friendly feature of this biofuel source. Over the past decade, the convergence of genetic engineering and oil refining advances combined with high fuel prices and scientists’ growing understanding of how to produce lipid-rich microalgae in vast quantities has led to NREL’s aggressive R&D efforts with commercial partners. More information about technologies like microalgal biofuel can be found on the EERE Biomass Program Web site at eere.energy.gov/biomass.