

leXsolar-BioFuel Large

Order code: **5501.1702**



Cena bez DPH 1.006,00 Eur

Price with VAT 1.217,26 Eur

Parameters

Subject	Biomass
Quantitative unit	ks

The entire process of the production of organic fuels can be displayed with leXsolar-BioFuel Large. It starts with the biological step of alcohol fermentation. Afterwards the produced mash will be distilled with the help of the leXsolar-condenser, which was developed just for this experiment. The last step demonstrates the conversion of the produced biofuel into usable energy, such as electrical energy, using the provided Ethanol-fuel cell.

leXsolar-BioFuel Large not only covers the topic of the production of bioethanol, but also the production of biodiesel through transesterification of fats.

Key data

- Production of biofuel displayed in experiments for students
- Covers bioethanol and biodiesel production
- Interdisciplinary experiments for chemistry, physics and biology
- Includes an Ethanol-fuel cell for the generation of electrical energy out of biofuel

Components

- Erlenmeyer flask, 1 liter, with distilling head
- leXsolar-condenser
- fermentation lock
- Hydrometer for ethanol and sugar
- Plug with hose
- Yeast
- leXsolar ethanol fuel cell
- leXsolar potentiometer module

Experiments

Part 1: Biodiesel production

- Transesterification from fat to Biodiesel (FAME)
- Determination of fat parameters
- Extraction of fats from foods and oil plants

Part 2: Alcohol fermentation

- Production of a mash/ alcoholic fermentation
- Fermentation of different sugar types (including catalytic splitting of starch)
- Proof of fermentation gases
- Nachweis von Gärgasen

Part 3: Distillation and production of Bioethanol

- Distillation of mash
- Characteristics of the produced Ethanol

Part 4: Ethanol fuels

- Introduction Ethanol fuel cell
- I-V curve of Ethanol fuel cells
- Dependency of Ethanol fuel cells on concentration and temperature
- Energy balance of the whole process

Extras needed

- Stand (foot, rods, clamps)
- Measuring cylinder (25 ml and 50 ml)
- Bunsen burner
- Laboratory thermometer
- Beaker, 500 ml
- Funnel
- Filter paper
- Spatula or spoon
- Raw material: Sugar, potatoes
- Calcium hydroxide

Extras available

- L3-03-096 Student's manual leXsolar-BioFuel Large
- L3-03-103 Teacher's manual leXsolar-BioFuel Large

Age: 14 - 19 years