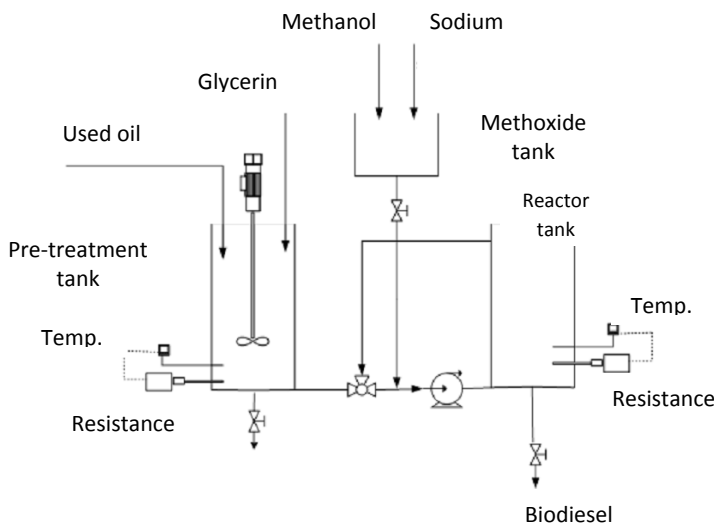




PLANT FOR THE PRODUCTION OF BIODIESEL



DL BIO-10

The oil to be treated is stored in a stainless steel tank of 200 mm. diameter and 350 mm. height for a volume of about 10 l.

The tank is provided with flanged caps for easy dismantling and cleaning. It is used to perform the pretreatment of the oil, by means of a stirrer, a heating resistor and a temperature sensor with digital controller to maintain the desired value.

The oil is transferred to the reactor by a metering pump with regulation of the flow, which is subsequently used to perform the recirculation in the reactor while the reaction takes place.

This reactor is a stainless steel tank of 200 mm. diameter and 350 mm. height for a volume of about 10 l.

By means of the same metering pump the methoxide, coming from a tank of 5 l. made of plastic material, is added to the reactor.

The whole plant is mounted on a AISI 304 stainless steel bench top structure with adjustable feet.

The electrical panel is integrated into the structure of the plant and it is equipped with all safety systems, according to current rules, as well as with a push-button for emergency stop.

From this panel it is possible to control all the devices that are part of the process.

At the same time, on the door of the electrical panel the temperatures and pH are displayed.

The power supply is three-phase with neutral and earthing.

Complete with:

- Technical documentation with different experiments

Description of the process

Oil and glycerin are inserted in the pretreatment tank and heated to 50 °C, continuously stirring. The mixture is then settled and decanted to remove any impurities from the oil.

The oil is then heated to 70-90 °C until the bubbles disappear.

Then, by means of the pump, the oil is sent to the reactor and heated, while keeping the temperature between 50 and 55 °C.

Methanol and sodium are mixed in the methoxide tank.

The recirculation of the oil starts with the pump and is continued, while 75% of prepared methoxide is added in 1.5 hours. Let stand and decant.

The recirculation of the oil starts again, while 20% of the methoxide is added in 1.5 hours. Let stand and decant.

The recirculation of the oil starts again, while the remaining 5% of the methoxide is added in 1.5 hours. Let stand and decant.

In this way biodiesel is obtained. The next step is to wash and purify it.