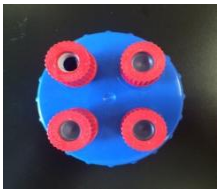
Schedule: Production of bio hydrogen

1. Preparation of fermentation bottle

1.1 Apply all five threads with Vaseline.

1.2 Screw the four bolted conection caps (one with hole and 3 with silicon seal) onto the bottle lid.



1.3 Insert in the three way cock in the bolted connection cap with the hole.

1.4 put the gas store (e.g. injection) on top adapter side of the three way cock.

1.5 fix a silicon hose on the adapter unit in the middle of the closed three way cock.

2. Preparation of the substrate

2.1 Weigh 20g Substrat I.

2.2 Weigh 20g Substrat II.

3. Start the fermentation

3.1 Put 650ml of hot H20 (76-78°C) together with Substrat I and Substrat II into the bioreactor and mix it.

3.2 Close the bioreactor gas-proof.

3.3. Start the fermentation at 37°C e.g. in a water bath.

4. Quantitative gas determination

The H_2 production in the bioreactor starts ca. after 10 hours. The volume of the produced hydrogen and the carbon dioxide can be read off the gas store (injection).

5. Preparation of the fuel cell and the H_2-conversion into electicity

5.1 Connect the fuel cell withe the wing engine to the plus pole and the minus pole.

5.2 Open the black silicon seal on the side of the plus pole.

5.3 After the H_2 production connect the bioreactor with the fuel cell on the upper gas connection to the minus pole side and open the three way cock.

5.4 Put a cap on the lower exit of the fuel cell.

6. Analyse of the gas chromatography

The gas quality will be determined by the GC-analyse (Injection 0,5ml)