The Water Stove

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Introduction

The water stove is the stove that uses water as a source of fuel for cooking. The stove uses the principle of electrolysis of water in which Hydrogen and Oxygen gases are dissociated from water. If these gases are combined we obtain a suitable gas which is used for fuel. The stove is considered to be the best cooker because it uses water which is cheap and available to many parts of Tanzania, it is costless and also it is environmental friendly that is it will help to reduce cutting down of trees for firewood and charcoal.

Generally the project will be very helpful to Tanzanian societies because the stove works in a very low cost and also will help to conserve environment.

Method

In this project different tools were used to construct the stove. The stove is divided into three main parts which are gas generator, conditioning chamber and burner.

Materials needed for construction.

1 GAS GENERATOR.

- Electric fane, Thin pipes, Switch, Plastic container, wire

2 CONDITION CHAMBER.

- Small metal cane, Switch, Wire

3 BURNER.

- Simple wire gauze, A small metal container, Metal pipe.

NOTE: A power supply of 12 or 24 voltage with high current about 30 amperes is needed.

Procedure

1 The gas generator.

- Take a plastic container and drill small eight holes at the middle of the container (They should be closer) and attach the electrodes with a glue. Do the same thing three times.
- Equally connect positive and negative wires to the electrodes.
- Join positive to negative wires and finally you will remain with two positive and negative wires.
- Connect a switch to the negative wire and then connect the wire with a switch and the positive wire to the power supply.
- Make a small hole at the bottom of the container in which a small tap will be attached.
- Take a container top and make a hole for the pipes.
- Again drill a small hole in which electric fane's wires will off the container.
- Attach the electric fane to the container top by using small wooden rode.
- Remove electric wire's fane through a hole which is beside the pipe hole on the container's top the seal.
- Seal the container top to a container with a Silicon rubber glue.

Results

After finishing making the three parts what is next is to connect the three parts. To connect the parts take the pipe from the conditioning chamber which is long to the bottom and attach it to the hole in a gas generator then seal with a glue. Also take the second pipe from the conditioning chamber and attach it to the hole drilled at the bottom of the burner.

By investigating and analysing this exceptional stove we obtained we obtained most important and basic data which are:

- The amount of gas produced per hour.
- The amount of electric units per day.

1.The amount of gas produced per hour.

The amount of gas produced per hour according to the first faraday's law of electrolysis was as follows.

From: mass of gas produced =electrochemical equivalent multiplied by quantity of electricity.

M=ZQ; M=1.036269(10-5)(30A)(3600); M=1.11917 grams of hydrogen.

For volume of hydrogen:

From: moles=mass/molar mass; Moles=1.11917g/1g/mol Moles=1.11917mol

From: moles= volume/molar volume; Volume=moles multiplied by molar volume. Volume=1.11917mol (22.4dm3)

Volume=25.06 Littre of hydrogen gas.

From the results shown above the water stove is costless and affordable in terms of electricity cost. The uses 2.16 units per six hours which cost Tsh500/=. More over the stove has a flame which is hotter than the natural gas. Which is very cheap compared to the use of natural gas of Tsh20,000/= and charcoal which is sold for Tsh2,000/=.

Conclusions

The findings and results obtained from used water stove shows that, the stove saves enough cost used by Tanzanians for cooking fuel especially for those people with low income. Which means that the water stove is better for use than natural gas stove and charcoal stoves due to its low costless and the ability of conserving environment..

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