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SHORT COMMUNICATION

DESIGNING SYSTEM FOR PRODUCING OXYGEN FROM SEA WATER

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ABSTRACT: Oxygen is one of the chemical elements in its atomic number is 8. It is a bio-element and it is found everywhere on the universe from each to air. Oxygen molecule is unstable the thermodynamically and it is produced through photo synthesis of nonaerobic bacteria and in the plants. Oxygen in standard pressure and heat is in the form of a gas that consists of two atoms of oxygen (O_2). Oxygen is an important element of the air that is produced through photosynthesis of plants and it is necessary for all living beings. The aim of present research is designing a system for producing oxygen from sea water. In this design the water in the container is analyzed to photosynthesis Oxygen and hydrogen by electricity and then it is separated by a special machine and each of the gases are entered into breathing capsule and a balloon by internal and external sucking. Results of this research will help divers to remove their problems.

KEYWORDS: Design, Produce, Oxygen, Sea Water.

INTRODUCTION

Oxygen is a gas that provides main metabolism of every living being. This gas that consists 1/5 of air atmosphere is somewhat soluble in water. In the same way that most living things on the earth take oxygen through their lungs and take it to the blood most aquatic beings such as fish take oxygen from water and transfer it to their blood through their lungs. In the present research producing oxygen from sea water has been evaluated. Results of this research will help divers to remove their problems (Adeniji, 1978; Adeniji *et al.*, 1984; Shah *et al.*, 1982; Vogler *et al.*, 1993; Araoye, 2007). For example when a diver travels some kilometers or meters under water he should come up and recharge his oxygen capsule on the sea level. Results of this research and producing oxygen from sea water, will remove these problems (Araoye *et al.*, 2007; Blumberg and Di-Toro, 1990; Ademoroti, 1996; Burke, 1962; Pitkin and Snyder, 1990; Prosser, 1973).

RESEARCH METHOD

At the beginning a valve has been designed for entering sea water into the system. Water is entered into a reaction container after passing from purification system. This container is made of two metal blades and a wire connection and some valves. Internal side of the mud is returned to the sea. So internal side of the container is full of holes, so that oxygen and hydrogen don't meet each other and the blades are made of oxygen and hydrogen. When electricity is connected to the container electrolise is formed. The power is gotten from a battery and a turbine, when a diver starts moving a turbine provides power and when he doesn't move a battery provides the power. Then oxygen and hydrogen both are entered into decantor and they are separated by special funnels. Oxygen is directed toward a capsule and hydrogen is directed toward a balloon. Of course at the external point of the capsule there is a special pipe for breathing of diver and inside the pipe there is a filter with some nitrogen gas and other natural elements so that the diver doesn't breathe poisonous gas and you can see its complete figure briefly.

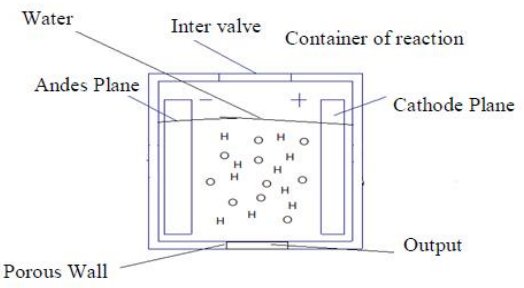

Figure 1: A schematic of the machine

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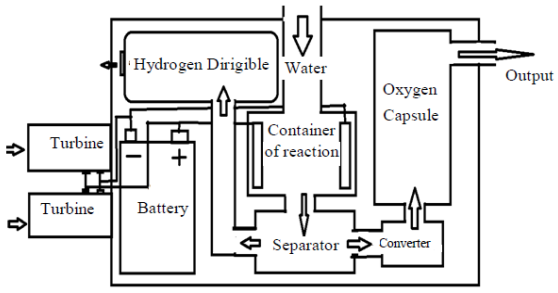

Figure 2: A schematic of processes of performing the design

RESULTS

This machine is better than other ones that are used by divers. So this system is used for welding industry where they use oxygen for welding. Of course hydrogen helps the diver to come up easier using the balloon and so there is one direction valve on the balloon that can exit hydrogen. Turbines provide battery power when the diver starts moving.

Reaction equation:

Before equilibrium $H_2O \Rightarrow H_2 + O_2$

Before equilibrium $H_2O \Rightarrow H_2 + 0.5\ O_2$

The above reaction is a kind of uncongenial parity reaction and the catalyst used in this reaction I (AP) is a negative one. Reactor element and catalyst are in separate phases. Catalyst is used for speeding the reaction and separating gases.

If we suppose that 0.2 kilogram of water equal to 200 grams enters into reaction container so we can estimate the amount of oxygen container so we can estimate the amount oxygen and hydrogen that are produced by changing mol to gram.

Mass of one mole of H2O is 18 gr. So:

1MOL	18gr
X	200gr
X=11.1 MOL	

So amount of O_2 and H_2 (molar mass) will be:

H_2O	H_2
1	1
11.1	X
X=11.1	
H_2=11.1	

H_2O	O_2
1	0.5
11.1	X
X=5.55MOL	
O_2=5.55	

Also amount of O2 and H2 (weight mass) will be:

O_2	
MOL	gr
1	32
5.55	X
X=177.6 gr	O_2=177.6 gr

H_2	
MOL	gr
1	2
11.1	X
X=22.2 gr	H_2=22.2 gr

Now, we know the amount of hydrogen and oxygen by gram, and we should know the amount or volume of oxygen that is used by a man. Relatively a man (woman) uses 16 Kj/ a minute energy while swimming.

Approximately a man's lung uses 80 gram of oxygen per 30 seconds. So a man uses 160 grams of oxygen per 60 seconds. Now we can get the volume that is produced and the volume that is used and we see that produced volume is more than used volume so the machine produces enough oxygen.

We do so for hydrogen and get its produced volume. Hydrogen volume is 22.2 grams per minute so volume of hydrogen balloon is 0.01 cube meters and its equal to 10 liter's.

Lit	MOL
1	22.4
10	X
X=0.44MOL	

Molecular weight:

MOL	gr
1	2
0.44	X
X=0.88 gr	

So volume of hydrogen balloon is 0.01 M^3 and its volume by gram is 22.2 gr. So if we divide hydrogen volume of balloon, we can find that hydrogen produced

when the balloon is full of hydrogen it is equal to 45.04 minutes. It means that after 45 minute the balloon is full of hydrogen.

O_2=177.6gr

H_2=22.2gr

So we find that water and oxygen are limiting elements.

H_2+O_2= 177.6+22.2=199.8gr

H_2O= 200gr

Additional volume or amount of water is 0.2 that is removed by holes that are on the sides of container.

CONCLUSION

This machine turns the water of reaction container into hydrogen and oxygen and then they are separated by a special machine each gas is directed toward a breathing capsule or a balloon through internal and external sucks.

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