International Journal of Advanced Research in Engineering and Technology (IJARET)
Volume 11, Issue 10, October 2020, pp. 516-519, Article ID: IJARET_11_10_055
Available online at http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=10
ISSN Print: 0976-6480 and ISSN Online: 0976-6499
DOI: 10.34218/IJARET.11.10.2020.055

WATER FROM AIR USING P TYPE SEMICONDUCTOR AND SUPPLYING ELECTRICITY TO THE GRID

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ABSTRACT

To supply water to draught hit areas of India for agriculture, the methodology uses dew point of air to convert it in to water. The dew point depends on relative humidity and temperature which are not constant and depends on the field conditions. In this proposal some values of relative humidity and temperature are taken from previous weather data. Electricity produced in this process is supplied to the grid.

Key words: P type semiconductor, water from air, dew point, power supply to the grid

Cite this Article: HJ Jayatheertha, Water from Air using P Type Semiconductor and Supplying Electricity to the Grid, *International Journal of Advanced Research in Engineering and Technology*, 11(10), 2020, pp. 516-519.
http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=10

1. INTRODUCTION

From Ref[1]

One room cold due to P-type Semiconductor air considered. Heat flows from high temperature top of the room to bottom cold of the room.

2. METHODOLOGY

Q=mC(T2-T1) heat I joules

Volume of air considered=1 meter cube

1 meter cube= 1 meter square

then mass of air=1.22kg

Cp=1020 joules/kg C

T2=27.4 C …….from dew point calculator

T1=35 C

Delta T=T2-T1=-7.6

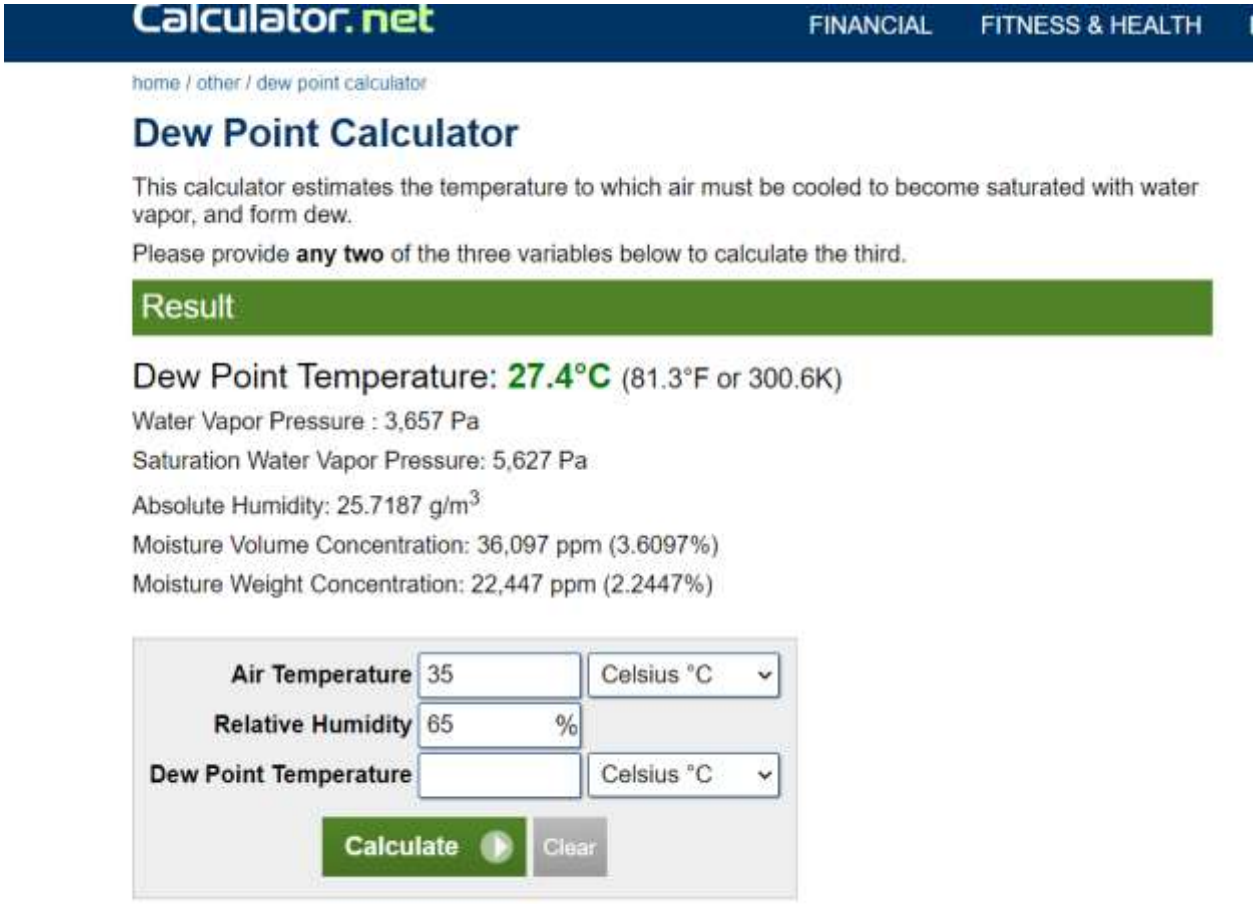
Q=1.22*1020*(-7.6)=-9457 joules

V*I*t=-9457 joules

Supply voltage =415 volts

Time= 1 milli second

Current i=-9457/(415*0.001)=-22787.9 A



Here current I is negative, indicating that it acts as a current source and hence adds power to the grid as a generator.

P type semiconductor is modelled as negative resistance, R=415/22787.9=0.018211 ohms

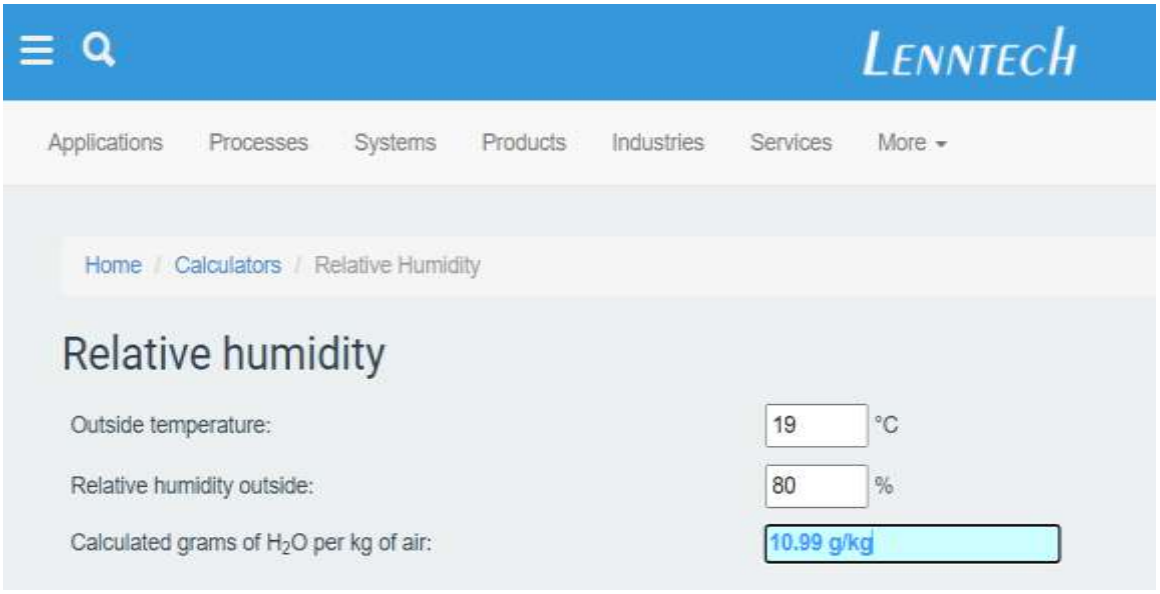
Resistivity=100 ohm-cm

Length= 2.5cm

R=resistivity*length/area

Area=resistivity*length/R=100*1.76/0.018211=9664 sq-cm=0.9664 sq-m=~1 sqm

For 1 milli second water produced=10.99 grams



For 1 second water produced = 10.99*1000 grams= 10.99 kg of water
For 1 year water produced=365*24*60*60*10.99=346,580,640 kg of water
1 cubicm=997 kg of water
1 kg of water=0.001 cubicm
346,580,640 kg of water=346,580 cubicm
1 cubicm of water=1000 liters
346,580 cubicm=346,580,640 liters

Foodstuff	Quantity	Water consumption, litres
Chicken meat	1 kg	**4,325**
Cheese	1 kg	**3,178**
Olives	1 kg	**3,025**
Rice	1 kg	**2,497**

346,580,640 liters=346580640/2497=138,798.8 kg of rice
1 kg of rice=45 rupees
Selling price=6,245,955 rupees
For 6 years selling price of rice=36,000,000 rupees

1 megawatt=1000000/(1.5*0.5)……AA battery 1.5 V, 0.5 A
1 megawatt=1,333,334 batteries
9 MW battery =12,000,000 batteries
AA battery cost=12,000,009*10 rupees=120,000,000
Reference 3: Nippo AA battery price

9 MW inverter cost=9*9.5*10^6=85,500,000
Shelf life of AA battery= 6 years
Kwh selling price=Rs2
9,000 kw*8760*2*6=473,040,000 rupees

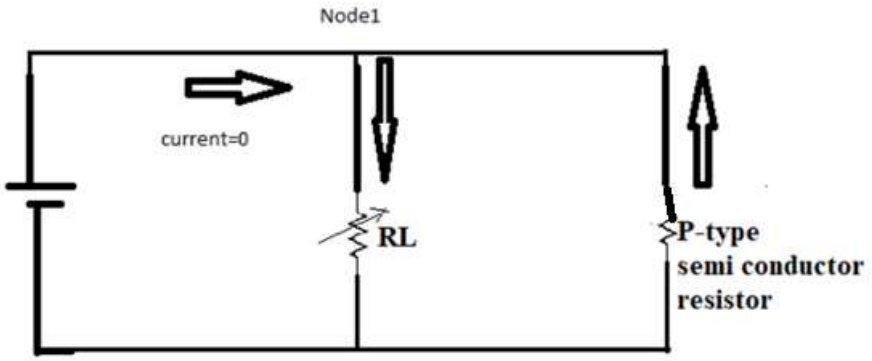


Figure 1 Water from air is produced by P type Semi-Conductor. Electricity is Supplied to the grid by RL

3. CONCLUSION

Water from air is produced from P type semiconductor. Electricity is supplied to the grid

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[3] www.weather online.com

[4] https://www.calculator.net/dew-point-calculator.html