CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
S0715

Project Title
Harnessing Electric Potential from Dripping Water

Abstract

Objectives/Goals
To investigate the parameters that affect electrostatic generation by means of an inline water dropper.

Methods/Materials
1 Lord Kelvin#s Thunderstorm inline water dropper; 1 Hygrometer; 1 Chronometer; 1 Voltmeter; 1 Large Pipette (100 mL); 1 Copper Wire (20 cm); 1 Liter of distilled water (H20); 1 Liter of saltwater (approx. 0.25 molar NaCl); 1 Liter of seawater (approx. 0.50 molar NaCl)
1.)Prepare experiment to be conducted under 0% and 100% relative humidity. 2.)Obtain an inline water dropper. 3.)Record voltage across the two collector cans with a voltmeter. 4.)Fill the reservoir with 400 milliliters of distilled water (H2O). 5.)Allow the water to drip for 15 seconds under 0% relative humidity. 6.)Record voltage across the two collector cans and any relevant observations. 7.)Ground the device by bridging the two collector cans with a copper wire. 8.)Repeat steps 3. # 7. 10 times for the given time interval, then 10 times for 30 seconds, 10 for 45 seconds, and 10 for 60 seconds. This is the control variable for the experiment. 9.)Repeat steps 3. # 8. under 50% relative humidity and then again under 100% relative humidity. These are the experimental variables. Repeat steps 3. # 8. with 0.25 molar saltwater and 0.50 molar seawater. Once again, these are the experimental variables.

Results
The Affect of Humidity on Electrostatic Generation

Distilled Water	0%	50%	100%
Time[sec]	Voltage[V]	Voltage[V]	Voltage[V]
0	0	0	0
15	0.041	0.027	0.0245
30	0.116	0.1195	0.1565
45	0.041	0.0405	0.03
60	0.052	0.039	0.021

The Affect of Ionic Substances on Electrostatic Generation

Distilled Water	Pure H2O	0.25molar NaCl	0.50molar NaCl
Time[sec]	Voltage[V]	Voltage[V]	Voltage[V]
0	0	0	0
15	0.041	0.048	0.054
30	0.116	0.1195	0.158

Summary Statement
Investigating he parameters that affect electrostatic generation.

Help Received