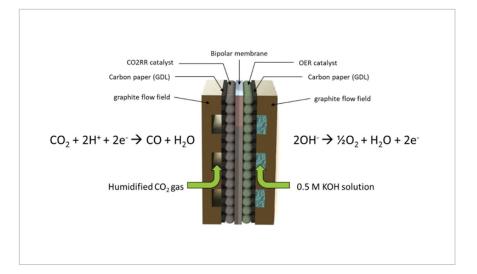
# Electrolyzer for Gaseous Carbon Dioxide

### ID# 2016-4537





Gas-fed CO2 Electrolyzer

## **Technology Summary**

To combat the challenges of current CO2 electrolysis technology, a novel system was designed where O2 and high value chemicals (fuel products) are created from gaseous CO2 and water. The system uses a bipolar membrane (BPM) based electrochemical cell, similar to current systems available to split water. The BPM allows CO2 gas to be used at the cathode, eliminates the problem of separating reaction products from reactants, and minimizes the introduction of contaminants. The electrolysis cell additionally generates reaction products in the gas phase, which is advantageous in terms of the mass transport of products out of the cell and the separation of products. BPM-based cells were tested and are able to achieve high current densities and stable operation for over 14 hours.

## Application & Market Utility

Potential applications for this technology include fuel creation and air purification. The inventor has demonstrated production of syngas, an intermediate to synthetic natural gas, but expects that additional products are possible. This technology could also be integrated into air purification systems to lower environmental CO2 levels. Applications may include confined, small, and/or crowded indoor spaces.

## **Next Steps**

Seeking research collaboration and licensing opportunities.

### **TECHNOLOGY READINESS LEVEL**

1-3

#### Seeking

Investment | Licensing | Research

#### Keywords

- CO2 Electrolysis
- Electrochemical Cells
- Electrolyzer
- Gas CO2 Exchange
- Alternative Fuel Production

#### Researchers

#### **Thomas Mallouk**

Evan Pugh University Professor of Chemistry, Biochemistry and Molecular Biology

#### **Originating College**

Eberly College of Science

#### Office of Technology Management Contact

Swope, Bradley bas101@psu.edu 814-863-5987



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