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# ASSESSMENT OF THE ENERGY DEMAND OF A PROTOTYPE STAND-ALONE OXYGEN GENERATOR USING MIEC MEMBRANES

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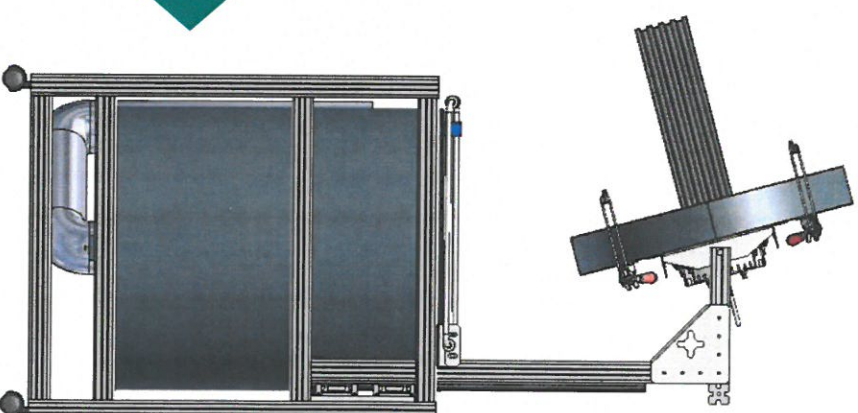
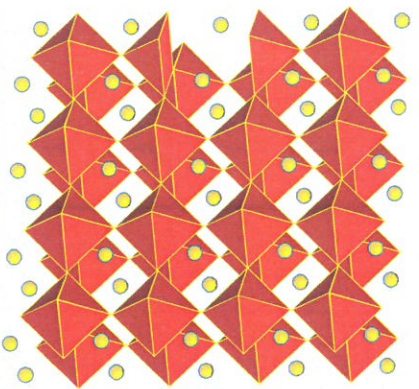
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# OUTLINE

1. 1<sup>st</sup> and 2<sup>nd</sup> demonstration Unit
2. Calculation of Oxygen Permeation
3. Operating conditions of O<sub>2</sub> Production
4. Next generation prototype
5. Economic evaluation
6. Summary and Outlook





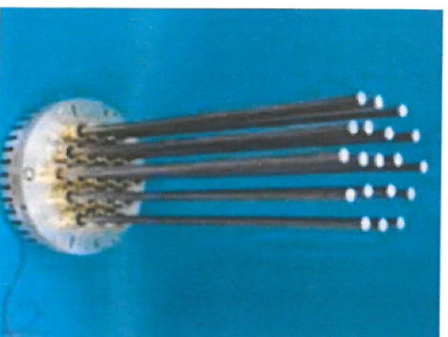
# Oxygen Production using MIEC Membranes: 1<sup>st</sup> Demonstration Unit - Proof of Concept

- **Vacuum operation**, 850 °C, 19 BSFC.membranes, 0.2 m<sup>2</sup>, 0.75 kW for air heating



One-side closed monolithic membrane tubes

- realized within **14 month**
- **170 L(STP) O<sub>2</sub>/h**
- **>2060 h, 35 cycles**



Membrane tubes in vacuum carrier plate

**Thuringian Research Award 2010**  
(applied research)



Achema, 05/2009

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