Methanolite

Executive Summary prepared for the Biomimicry Institute, 11/10/2020

Methanolite is a system that provides a sustainable method in repurposing methane into methanol. The aims of this system were actualized through the guidance of Jacques Chirazi, a biomimicry professional and business expert, and Marjan Eggermont, a professor at the Schulich School of Engineering at the University of Calgary.

PROBLEM & OPPORTUNITY

In the energy sector, production of methane is very common. In most cases, gases are either flared or vented out. Both solutions cause emissions that harm the environment that can otherwise be monetized. There are 162,500 sites that actively vent and flare methane within the province of Alberta alone. Over one year, Carleton University reports that this vented methane has a market value between $213 – $253 million.

SOLUTION

The Methanolite provides an alternative to current industrial processes in the conversion of methane to methanol with comparatively less carbon dioxide production through the usage of a copper zeolite catalyst. Resulting in a innovative catalytic reactor that can potentially be implemented into current practices.

BIOMIMICRY IN PRACTICE

Biomimicry is leveraged in the Methanolite through the methanotroph metabolism inspired catalysis of methane to methanol through the copper zeolite catalyst. Sustainability is implemented in our design through the essence of a catalyst, which is recyclable and can be regenerated.

REVENUE MODEL

The Model that our company plans to take is a licensing system. Companies will provide us more data about their methane emissions and we will modify the methanolite system to fit their needs. Companies would pay us to develop a custom methanolite which they could then employ.

TRACTION

We have reached out to 5 experts in a variety of fields to modify our project to make it better suited for the the marketplace. Additionally, we have re-engineered the catalyst bed to have a higher penetration for methane influx.

TEAM

Our team is comprised of engineers from different specialties as well as microbiology students who are passionate about reducing carbon emissions.

NEXT STEPS

In the future, we hope to conduct our own tests with the zeolite catalyst. Furthermore, we want to move away from digital simulations and into physical prototypes.

UN SDGs

Goal 13: Climate Change
Goal 12: Responsible Consumption and Production

NATURE INSPIRATION

The metabolism of Methanotrophs

NEEDS

- Prototyping Catalyst
- Flow Simulation
- Expertise on Licensing

FOUNDING TEAM

- Naureen Othi, Biological Considerations and Outreach
- Agam Aulakh, Program and PR design
- Cheshta Sharma, Chemical Reaction Design
- Anjali Patadia, Process Design

CONTACT INFO

Methanolite
2500 University Dr. NW
Calgary, AB, Canada
enovacalgary@gmail.com

BIOMIMICRY INSTITUTE