

Implementation systems

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Background

- In Malaysia, the 2nd largest producer of palm oil, about 73 million tons of Palm Oil Mill Effluent (“POME”) produced in the manufacturing process of palm oil per year.
- The effluent standard is specified by the government of Malaysia, and the lagoon system treated by many large reservoirs in the few months is installed, but the cases not to comply with the standard frequently occur. The issue of soil contamination and odor damage to neighbors is also serious since the high polluted POME is stored for a long period.
- Due to the serious pollution of the river, the government of Malaysia considers making the effluent standard strictly and palm oil companies seek “stably and economically treatment system”. However, they have not developed and installed the appropriate treatment technology yet. The spread of the treatment technology which can be installed to large and medium scale is required.

Project outline

- To verify the technology and business model of POME treatment system using a foamed glass "Porous Alpha" as a microbe media through demonstration of the system.

Location

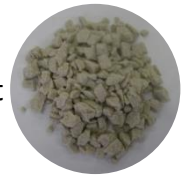
- A Palm oil mill (discharging 3,000m³/day) in Malaysia

Outline of technology

<About Porous Alpha>

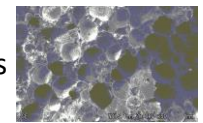
- A foamed glass, transformed from used glass bottles
- Mechanism: The microbes, which exist in the effluent and live in the pores in Porous Alpha, decompose the organic material in the effluent.

Porous Alpha

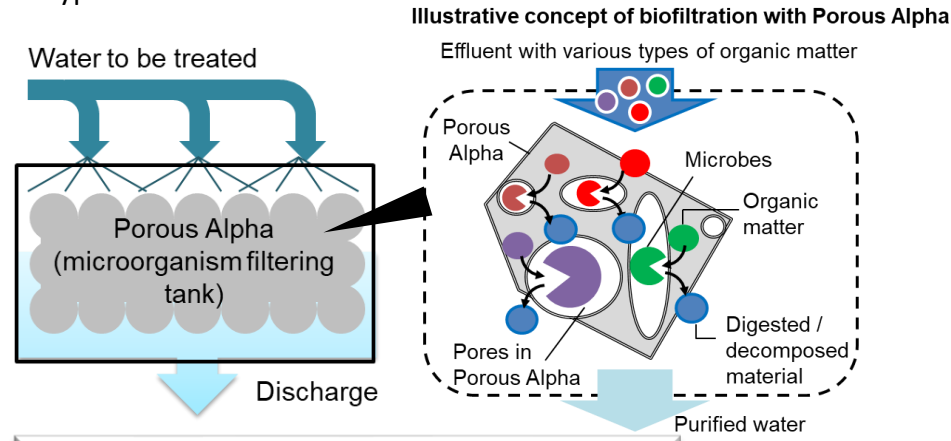


<Advantage of Porous Alpha>

- Durability: Porous Alpha can work more than 10 years without replacement, as Porous Alpha is not biodegradable or not fragile to weight
- Diversity of pores: Diversified form and size of pores in Porous Alpha can serve as living space for various types of microbes



Electron Micrograph
(Specific surface area: 83 m² g⁻¹)



Expected results and business prospects

- To reduce the pollutions of rivers, soil, and atmospheric occurred by POME produced from the palm oil mills.
- To promote the installation of Porous Alpha treatment system with cooperation with the local EPC company.
- *In total 451 palm oil mills are operated in Malaysia (as of Dec 2018)
- To contribute to reduce the pollutions of rivers, soil, and atmospheric in Indonesia, which is the largest palm oil producer.