

## **Energy Production from Fish Waste in Large-scale Anaerobic Digestion**

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Marine product processing industry discharges large amounts of fish waste. Incineration is a general method of treating fish waste, but it demands high treatment energy because of its high water content. On the other hand, fish waste has a potential for a raw material for anaerobic digestion because of its high chemical oxygen demand (COD). In this study, it was investigated to produce energy from fish waste in a 27 m<sup>3</sup> anaerobic digestion reactor. Exhaust heat from a seafood-processing factory was used to prompt the heating of the reactor. Oyster shell was added to the reactor in order to reduce the fermentation inhibition by high ammonium concentration because it supplied calcium ion which could reduce the inhibition. The garbage in processing cod in a seafood-processing factory was used as a raw material. Activated sludge was also added along with the garbage in order to adjust C/N ratio which can reduce the ammonium concentration. Biogas volume, pH, COD, ammonium concentration and organic acids were measured with time. If this system receives 1 ton of fish waste per day, it will generate up to 500,000 kWh of electricity per year. Therefore, this system might serve as an emergency power supply resource in times of disaster.