

Realization of low carbon society through game changing technologies

R&D Project Title: Development of passive and rapid control of reaction heat using latent heat storage technology

Project Leader : Takahiro Nomura
Associate Professor, Faculty of Engineering, Hokkaido University

R&D Team : The Institute of Applied Energy



Summary :

This project aims to solve serious problems such as hot-spot generation, low yield of products, short life-time of catalysts, and generation of low-temperature waste heat, in catalytic reaction processes (e.g. CO₂ methanation) .

The purposes of this study are

1) to develop catalyst with thermal energy storage (TES-Catalyst) functions which is composed of catalyst supported on Micro-Encapsulated Phase Change Material (MEPCM).

2) to realize a system that can passively & directly control & regeneration of reaction-heat at constant-temperature by latent heat storage function of the TES-Catalyst.

This new concept can be applied to various catalytic reaction processes and realize co-production system.

A system with TES-Catalyst for control & regeneration of reaction-heat system (e.g. CO₂ methanation)

