# Data on Thermal Conductivity of Thermal Insulation Boards

## *Title of Manuscript

Smart Powder Processing for Excellent Advanced Materials and Its Applications

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## *Keywords

*smart powder processing, particle bonding, lithium-ion battery, fuel cell, thermal insulation material*

## *Data Description

The CSV file contains the data on the relationship between thermal conductivity of the fibrous fumed silica compacts and temperature in Fig. 5 of the manuscript. The specimens are (1) hydrophilic silica added, (2) hydrophobic silica added, and (3) after 400 ℃ heat treatment of the board (2).

Thermal conductivity ($\lambda$) is calculated using the following equation.
$\lambda = \alpha c \rho$ ($\alpha$: thermal diffusivity, c: specific heat, $\rho$: density)

Instrument
- Measurement system by cyclic heating method (Thermal diffusivity)
- Drop calorimeter (Specific heat)

Measurement condition
- Temperature: 100, 200, 300, 400, 600 ℃
- Atmosphere: 1 atm, in air

Experimental condition
- Compounding ratio :
  - Fumed silica nanoparticle 60 mass%
  - SiC particle 20 mass%
  - Glass fiber 20 mass%
- Pressure of uniaxial press: 2 Mpa

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