PRODUCTS FOR BATTERY

Nanocomposite Insulation Material

NAGASE | Delivering next.

SUPHIP® New Type of Insulation Material

A solid nanoporous material with three dimensional network structure, which is composed of nanoparticles or polymer molecules. It has lowest density and thermal conductivity in the world.

Reduce cost and increase efficiency

» A one-step process delivers aerogel-like performance with lower cost and excellent insulation at high temperatures.

Fiber surface without slag balls

» Unlike aerogel, it's impurity-free, highly consistent, and stable—posing no added risk to the electrical core

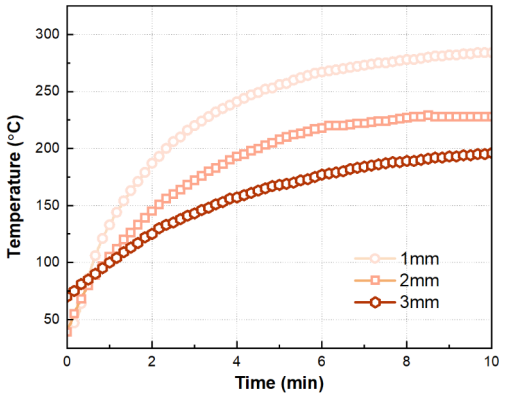
High stabililty

» Dense structure withstands pressure over 2 MPa without losing insulation

SUPHIP® ZK01 Core Material Testing Data

Core material at 1000 °C Fire Test

Core material cold side temperature at 1000 °C Fire Test



Characteristic	Unit	Typical Value	Remarks (Testing Standards and Methods)
Physical Characteristics			
Thickness	mm	0.5-3.5	Thickness tolerance +/- 0.2 mm
Density	Kg/m³	200-300	GB/T 17911-2018
Compression performance	MPa	18~25 % ad 0.1 MPa 30~40 % ad 0.5 MPa 45~55 °C ad 1.0 MPa	Test with an inlet force of 0.01 Mpa and a compression rate of 2 mm/min
Electrical and thermal performance			
Insulation performance	GΩ	10	ASTM D257 (1000 DC, 60 s)
Fire resistance performance	min	10	1000 °C Butane flame
Thermal conductivity coefficient	W(m*K)	≤0.04 0.055 0.1	GB/T 10295-2008 (25 °C) GB/T 10294-2008 (100 °C) GB/T 10294-2008 (500 °C)
RoHS	-	pass	Requirements of appendix II to RoHS 2011/65/EU and Revised Directive (EU) 2015/863

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