

# Supporting Information

for

## **In situ controlled rapid growth of novel high activity TiB<sub>2</sub>/(TiB<sub>2</sub>-TiN) hierarchical/heterostructured nanocomposites**

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## **Additional TG-DSC results**

**Table 1:** The major related TG-DSC results and the average particle sizes of the samples.

Sample	Particle size	TG Temperature range	DSC exothermic peak temperature	DSC exothermic peak area	TG weight change
#1-Commercial pure TiB <sub>2</sub> (contrast sample)	5um	1-463°C~550°C	Peak 1-518°C	Peak 1< Peak 2	↑9%
		2-550°C~839°C	Peak 2-710°C		↑82%
#2-0% endothermic rate	0.9um	1-446°C~577°C	Peak 1-490°C	Peak 1≈ Peak 2	↑28%
		2-577°C~707°C	Peak 2-644°C		↑45%
#3-40% endothermic rate	0.15um	1-422°C~517°C	Peak 1-480°C	Peak 1> Peak 2	↑35%
		2-517°C~695°C	Peak 2-630°C		↑27%