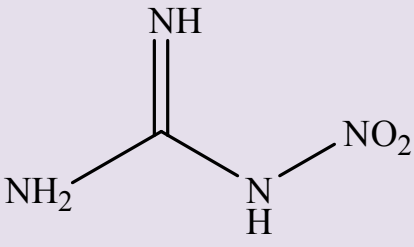
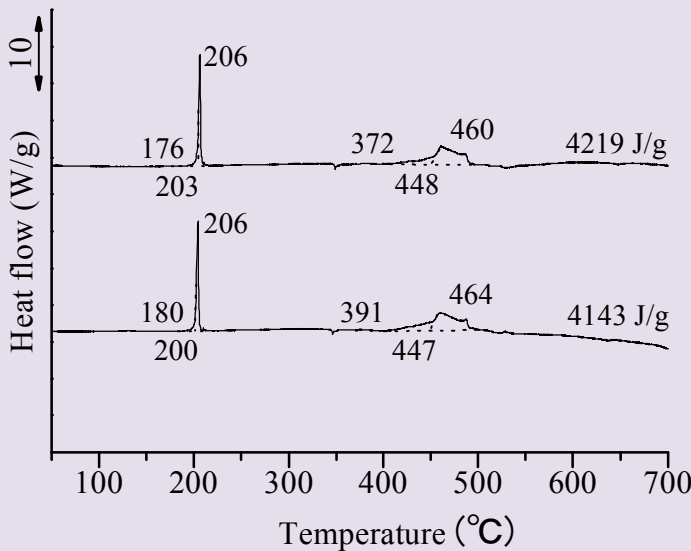
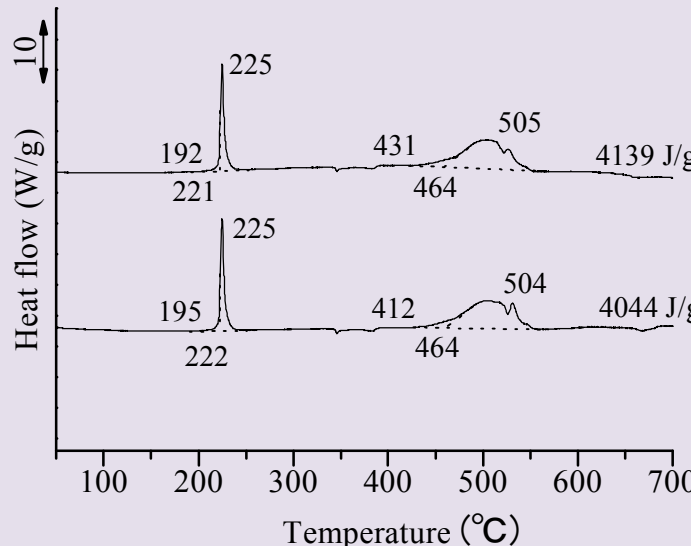
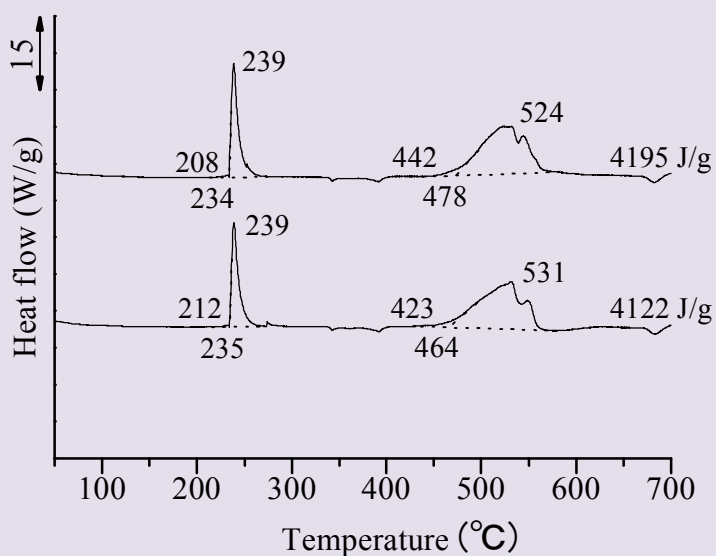


Nitroguanidine	$\text{CH}_4\text{N}_4\text{O}_2$ NGd
	DSC device: DSC8270B Rigaku Corp. dT/dt: 2, 5, 10, 20 K/min Atmosphere: Air Vesel: pressure vessel (SUS) Rigaku Corp. Sample: ALDRICH (25% water)
a) 2 K/min	
	<Average> $T_a$ : 178 °C $T_o$ : 202 °C $T_{top}$ : 206 °C $Q_{DSC}$ : 4181 J/g
b) 5 K/min	
	<Average> $T_a$ : 194 °C $T_o$ : 222 °C $T_{top}$ : 225 °C $Q_{DSC}$ : 4092 J/g

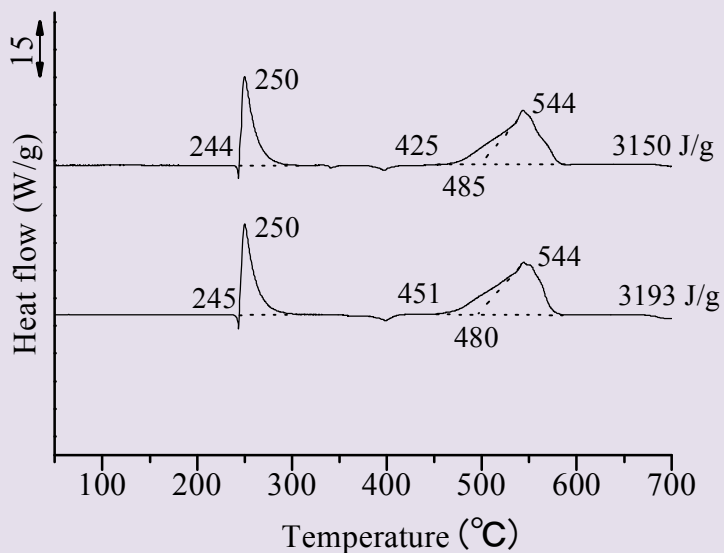
c) 10 K/min



<Average>

$T_a$  : 210 °C  
 $T_o$  : 235 °C  
 $T_{top}$  : 239 °C  
 $Q_{DSC}$  : 4159 J/g

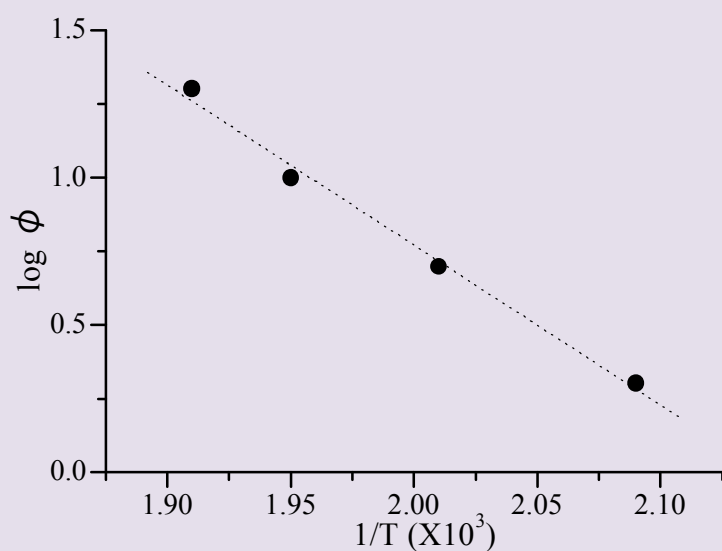
d) 20 K/min



<Average>

$T_a$  : 245 °C  
 $T_o$  : 245 °C  
 $T_{top}$  : 250 °C  
 $Q_{DSC}$  : 3172 J/g

## ASTM PLOT



$\Delta E$  : 101 kJ/mol  
 $A$  :  $7.73 \times 10^{17}$   
 $r$  : -0.99625

Heat rate $\phi$ (K/min)	$T_{\text{peak}}$ ( $^{\circ}\text{C}$ )	$T_m$ (K)	$1/T_m \cdot 10^3$	$\log \phi$
2	206	479	2.09	0.301
	206	479	2.09	0.301
5	225	498	2.01	0.699
	225	498	2.01	0.699
10	239	512	1.95	1.00
	239	512	1.95	1.00
20	250	523	1.91	1.30
	250	523	1.91	1.30