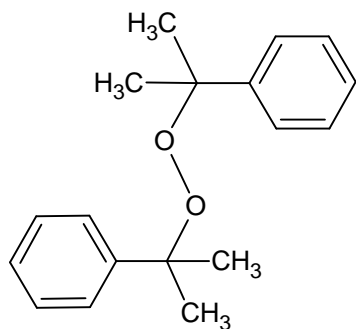


Dicumyl peroxide

$C_{18}H_{22}O_2$

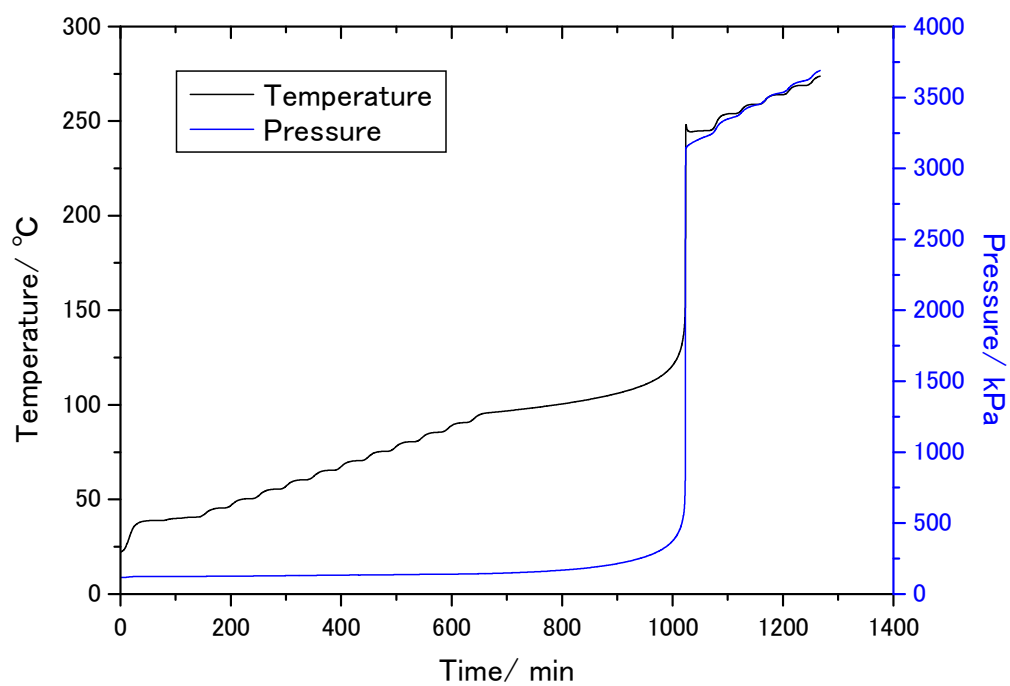
DPO



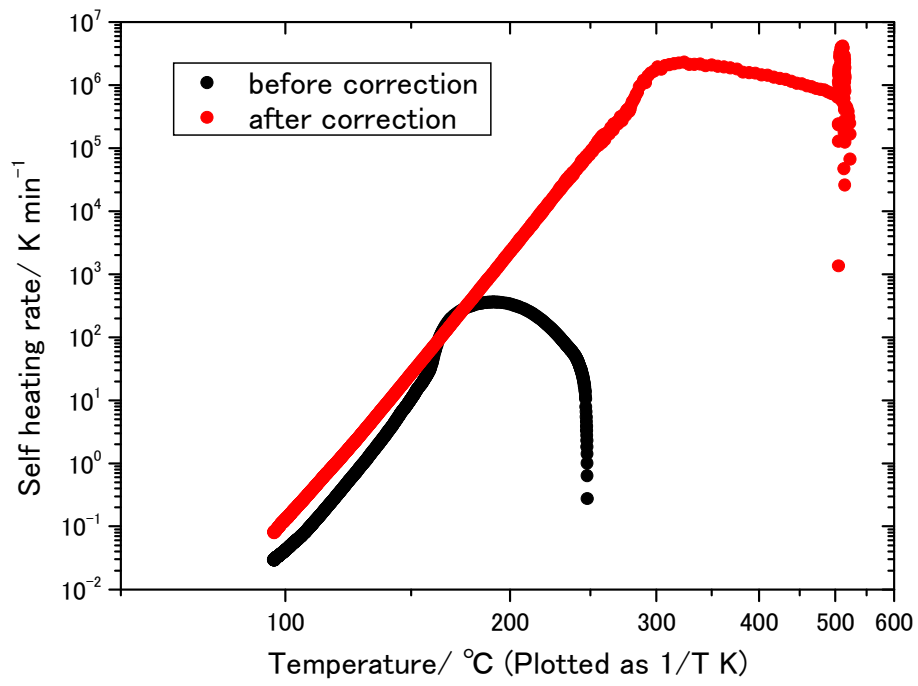
ARC device: New ARC (TIAX, LLC)

Date: 2009/2/12

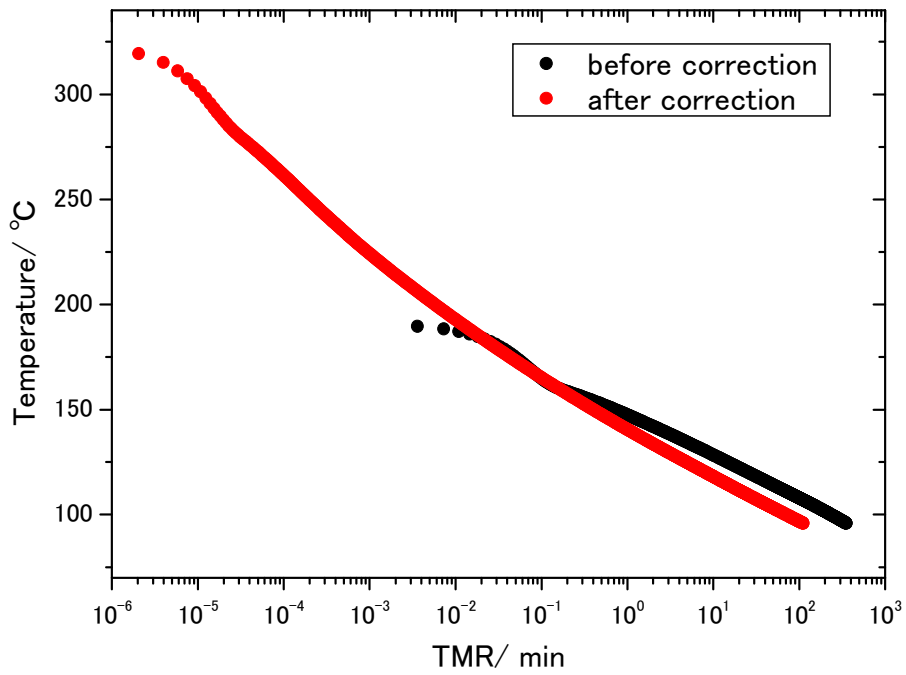
Operator: Y. S.



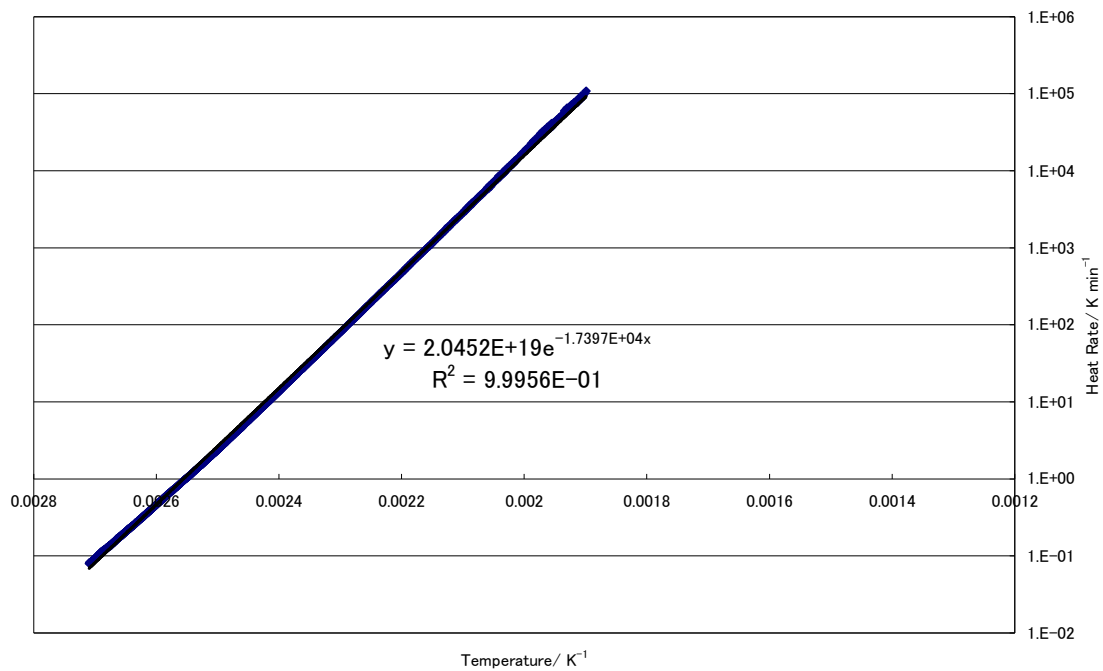
Time vs. Temperature and Pressure



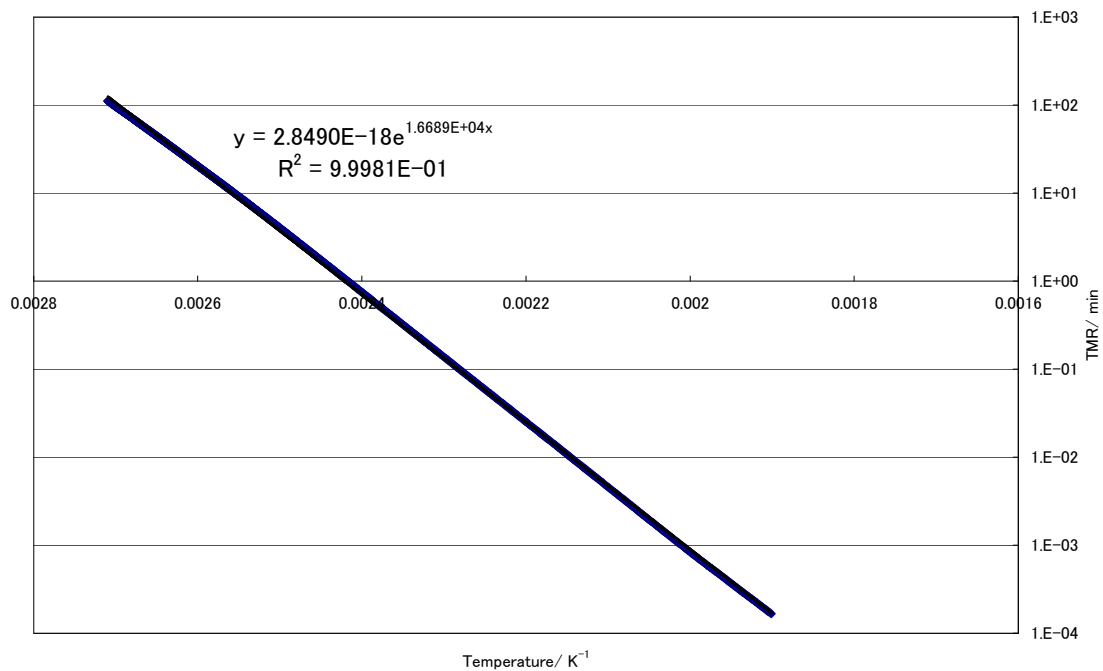
Temperature vs. Self heating rate



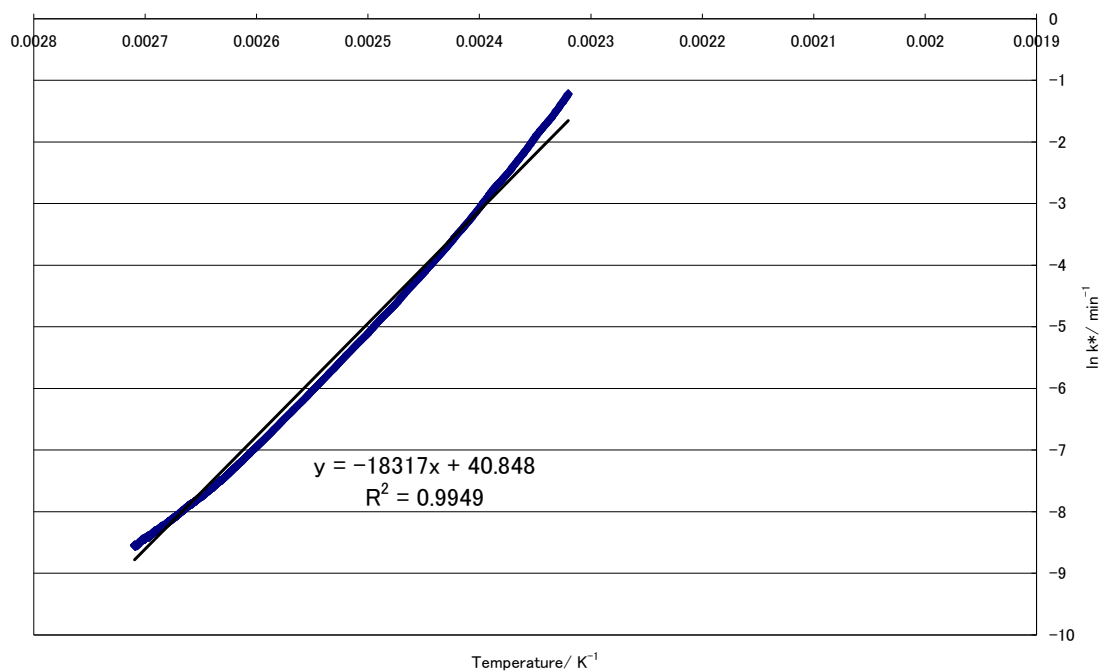
TMR vs. Temperature



Temperature vs. Self heating rate (approximate calculation)



Temperature vs. TMR (approximate calculation)



Arrhenius equation (approximate calculation)

	Date	2009/2/12
Measuring conditions	ARC device	NewARC (TIAX, LLC)
	Operating Institute	AIST
	Operator	Y. S.
	Material of Bomb	Hastelloy C
	Weight of Bomb (g)	20.4011
	Volume of Bomb (mL)	about 9
	Weight of sample (g)	2.3526
	Weight of residue (g)	2.2248
	Specific heat of Bomb ( $\text{J K}^{-1} \text{g}^{-1}$ )	0.419
	Specific heat of sample ( $\text{J K}^{-1} \text{g}^{-1}$ )	2.093
	$\phi$ facotr	2.736
	Start temperature ( $^{\circ}\text{C}$ )	40
	End temperature ( $^{\circ}\text{C}$ )	400
	Temperature increment (K)	5
	Waiting time (min)	15
	Searching time (min)	15
Exothermic threshold ( $\text{K min}^{-1}$ )	0.02	

	Logging intervals (°C)	0.15
	Pressure limit (kPa)	20000
	Atmosphere	Air, atmospheric pressure
Results	T <sub>o</sub> , Exothermic temperature (°C)	95.921
	Self heating rate at T <sub>o</sub> (K min <sup>-1</sup> )	0.030
	Pressure at T <sub>o</sub> (kPa)	144.17
	Temperature at maximum self heating rate (°C)	190.88
	Maximum self heating rate (K min <sup>-1</sup> )	361.03
	Pressure at maximum self heating rate (kPa)	3034.4
	Pressure rising rate at maximum self heating rate (kPa min <sup>-1</sup> )	1294.4
	Maximum pressure (kPa)	3142.7
	Maximum pressure rising rate (kPa min <sup>-1</sup> )	18049
	Temperature at maximum pressure rising rate (°C)	160.04
	Time to maximum rate (min)	352.60
	Maximum temperature (°C)	248.03
	Adiabatic temperature rise (°C)	152.11
	Activation energy (kJ mol <sup>-1</sup> )	152.3
	Heat of decomposition (J g <sup>-1</sup> )	871.1
Corrected results	T <sub>ARC</sub> , Exothermic temperature (°C)	86.47
	Time of maximum rate at T <sub>ARC</sub> (min)	406.57
	Self heating rate at T <sub>ARC</sub> (K min <sup>-1</sup> )	0.02
	Maximum self heating rate (K min <sup>-1</sup> )	2.300 × 10 <sup>6</sup>
	Maximum temperature (°C)	513.03
	Adiabatic temperature rise (°C)	426.56
	Heat of decomposition (J g <sup>-1</sup> )	892.8