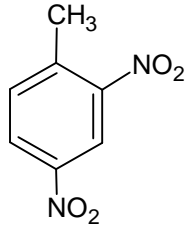


2,4-dinitrotoluene

$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$

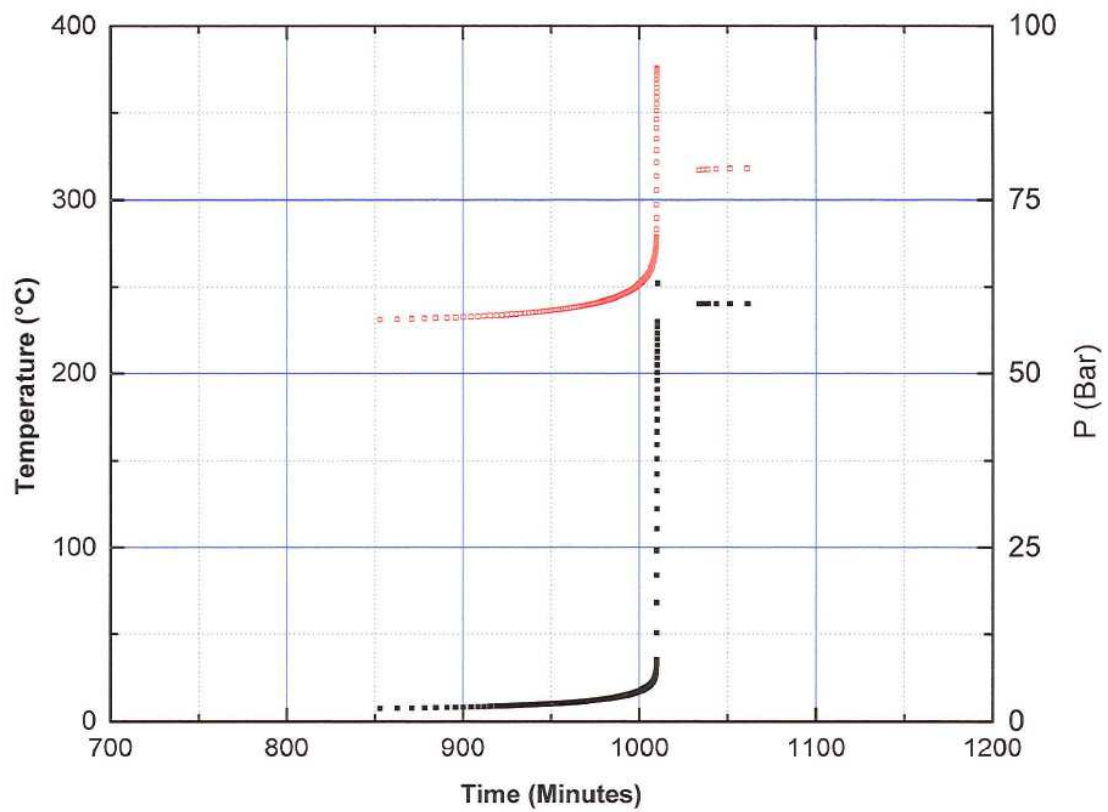
DNT



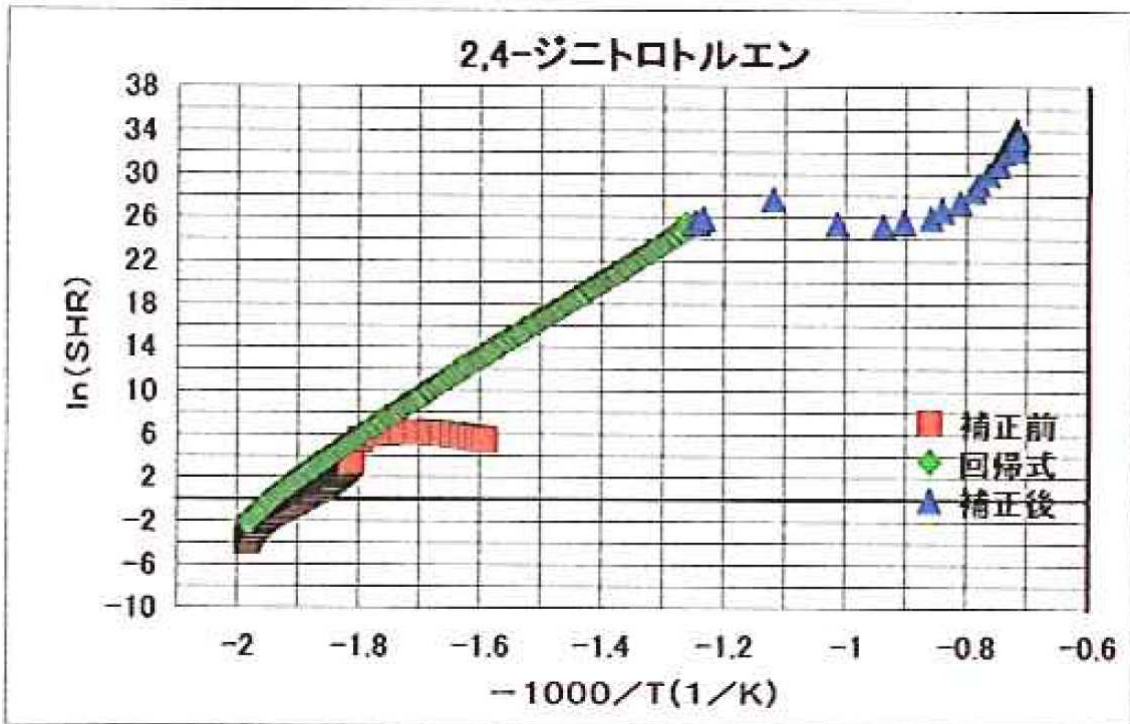
ARC device: ARC2000 (Arthur D. Little Inc.)

Date: 2009/1

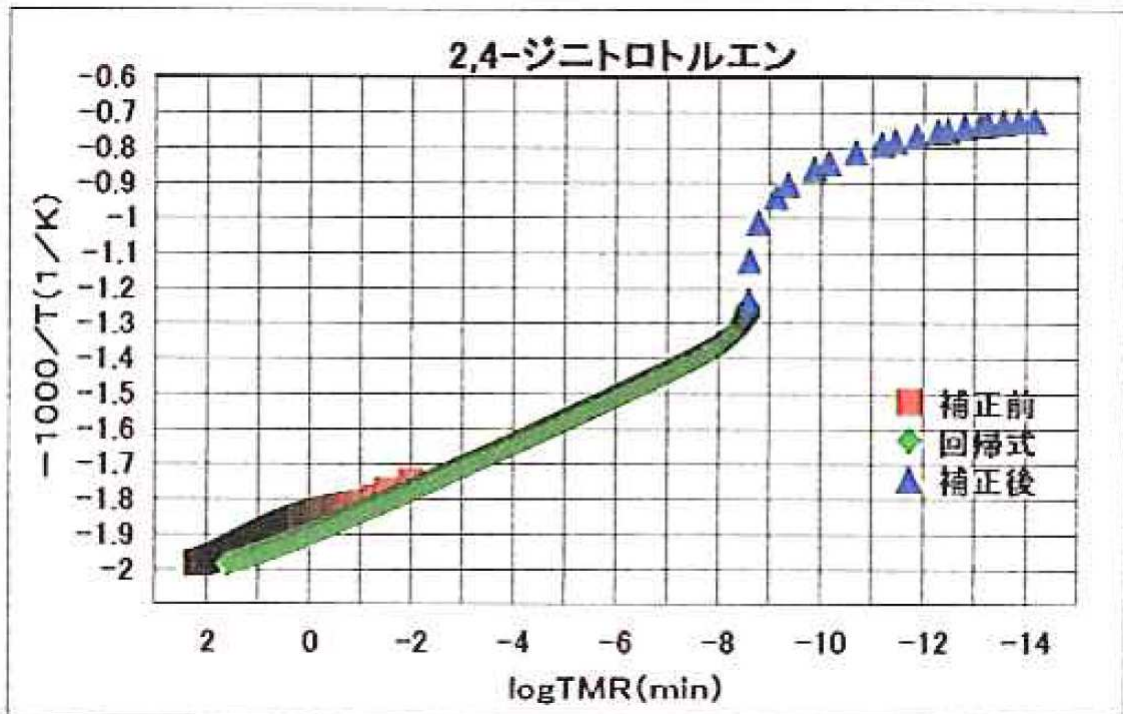
Operator: KJ



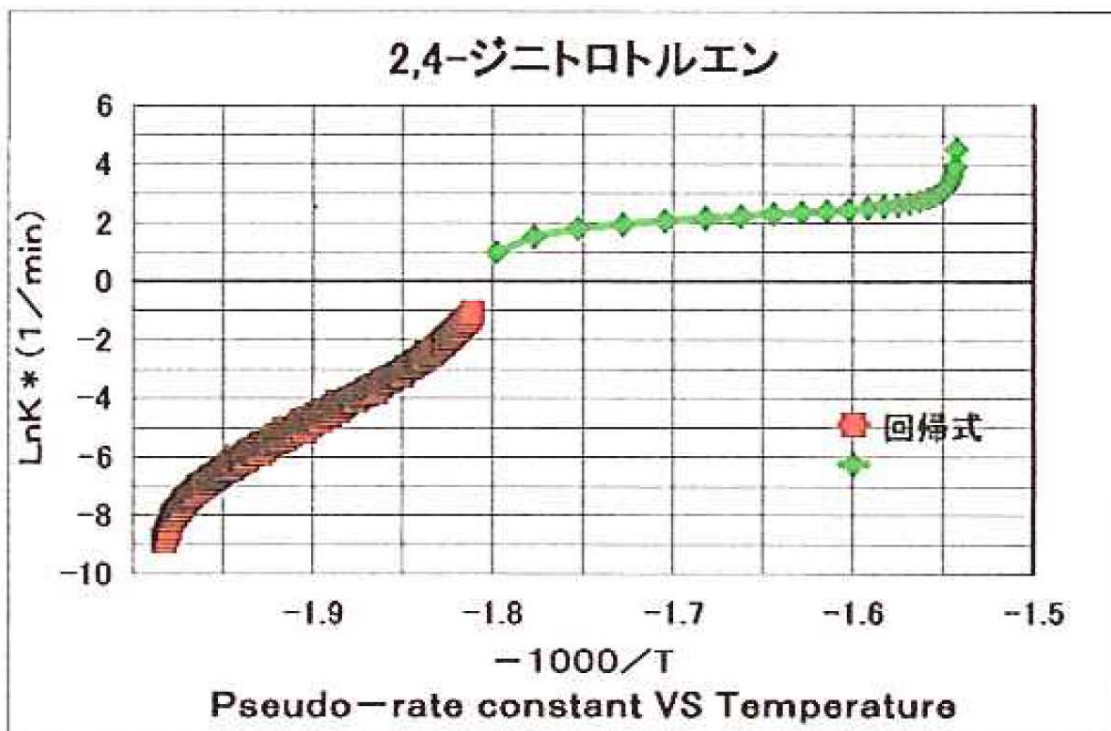
Time vs. Temperature and Pressure



Temperature vs. Self heating rate



TMR vs. Temperature



Arrhenius equation (approximate calculation)

	Date	2009/1/8
Measuring conditions	ARC device	ARC2000 (Arthur D. Little Inc.)
	Operating Institute	KJ
	Operator	KJ
	Material of Bomb	Hastelloy C
	Weight of Bomb (g)	15.129
	Volume of Bomb (mL)	about 9
	Weight of sample (g)	0.585
	Weight of residue (g)	0.153
	Specific heat of Bomb ($J K^{-1} g^{-1}$)	0.419
	Specific heat of sample ($J K^{-1} g^{-1}$)	2.093
	ϕ facotr	6.17
	Start temperature ($^{\circ}C$)	50
	End temperature ($^{\circ}C$)	450
	Temperature increment (K)	5
	Waiting time (min)	10
Searching time (min)	10	

	Exothermic threshold (K min ⁻¹)	0.02
	Logging intervals (°C)	0.2
	Pressure limit (kPa)	17000
	Atmosphere	Air, atmospheric pressure
Results	T _o , Exothermic temperature (°C)	231.03
	Self heating rate at T _o (K min ⁻¹)	0.021
	Pressure at T _o (kPa)	190
	Temperature at maximum self heating rate (°C)	305.53
	Maximum self heating rate (K min ⁻¹)	494.13
	Pressure at maximum self heating rate (kPa)	2450
	Pressure rising rate at maximum self heating rate (kPa min ⁻¹)	21398
	Maximum pressure (kPa)	6300
	Maximum pressure rising rate (kPa min ⁻¹)	26551
	Temperature at maximum pressure rising rate (°C)	289.61
	Time to maximum rate (min)	156.85
	Maximum temperature (°C)	375.42
	Adiabatic temperature rise (°C)	144.39
	Activation energy (kJ mol ⁻¹)	309.8
Heat of decomposition (J g ⁻¹)	1863	
Corrected results	T _{ARC} , Exothermic temperature (°C)	211.7
	Time of maximum rate at T _{ARC} (min)	154.43
	Self heating rate at T _{ARC} (K min ⁻¹)	0.02
	Maximum self heating rate (K min ⁻¹)	6.70 × 10 ¹⁴
	Maximum temperature (°C)	1123.8
	Adiabatic temperature rise (°C)	912.05
	Heat of decomposition (J g ⁻¹)	1909