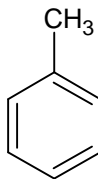
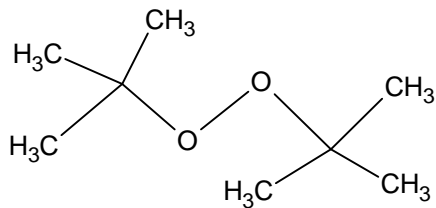


tert-Butyl peroxide - Toluene

$C_8H_{18}O_2 - C_6H_5CH_3$

TBP - Toluene



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

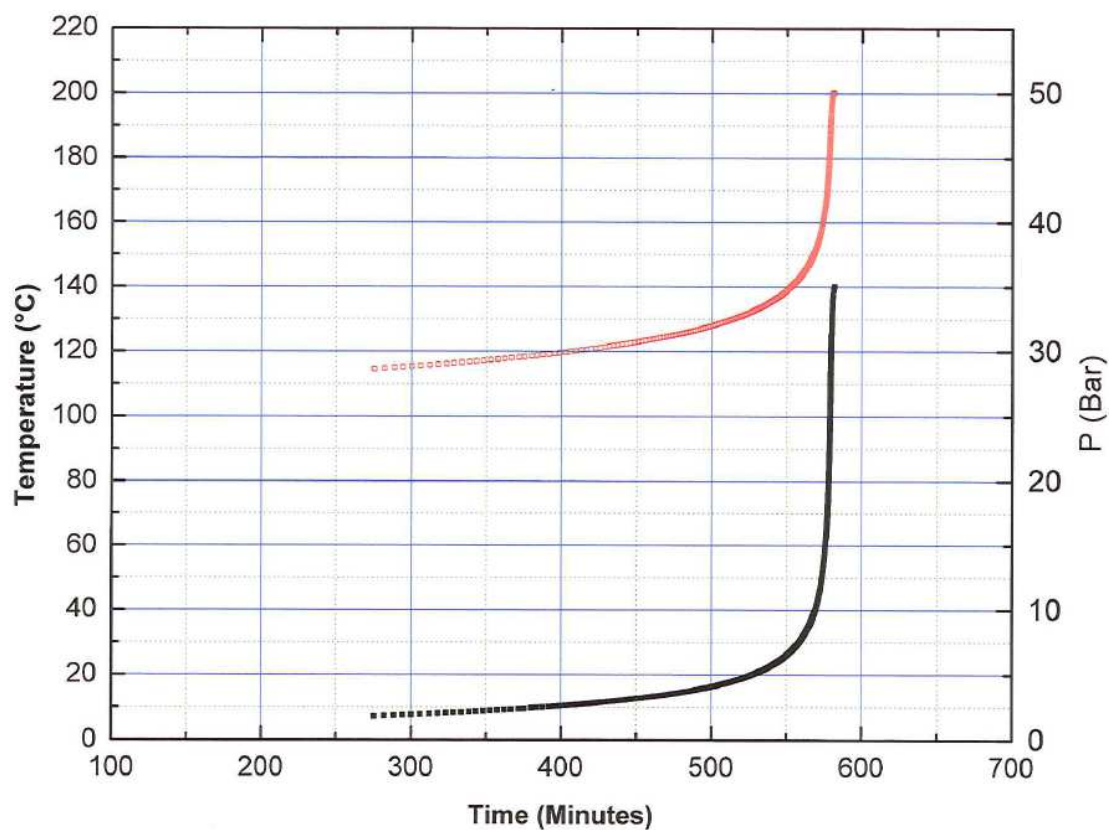
Material of Bomb: Ti

Waiting & Searching Time: 10 min

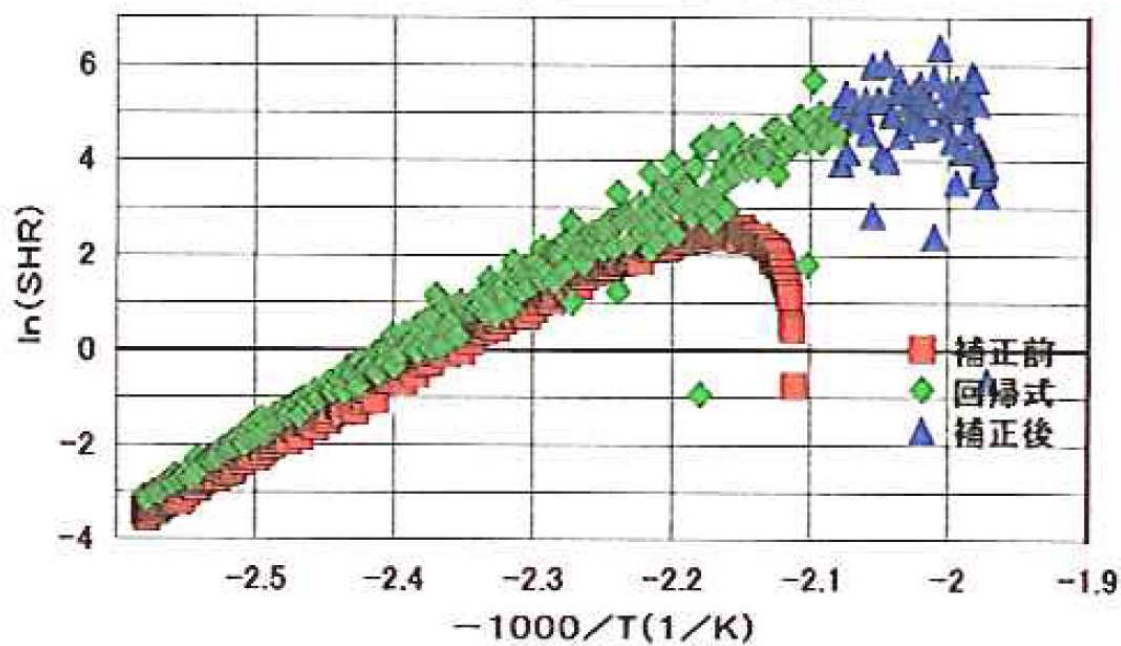
TBP Concentration: 20%

Date: 2008/11

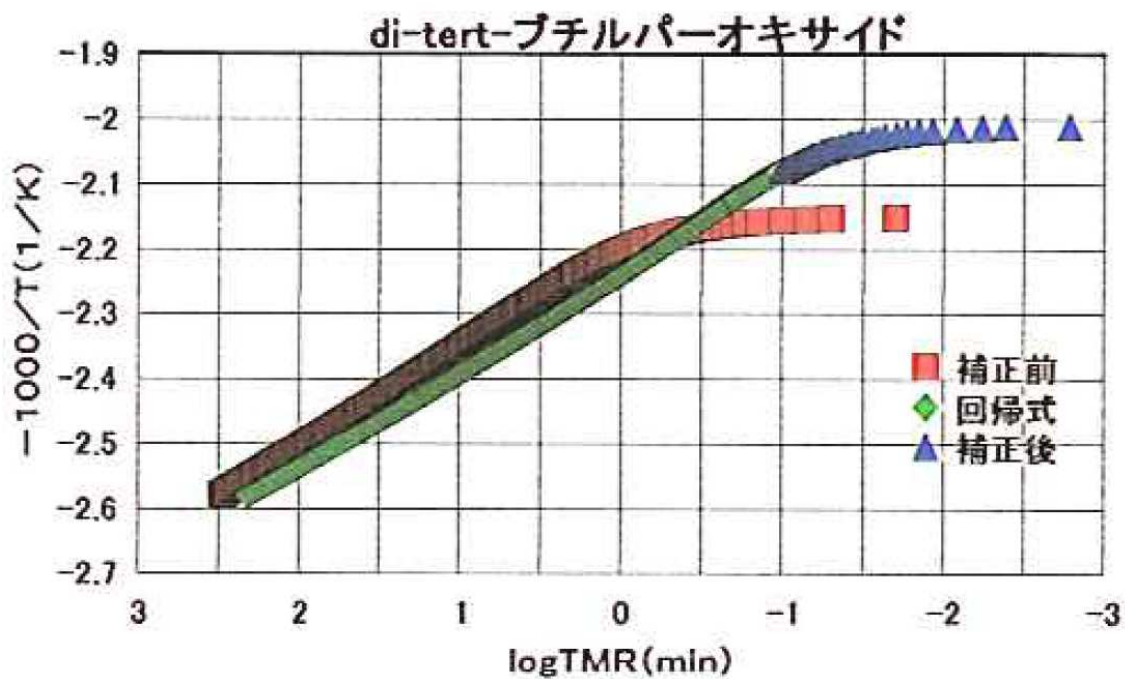
Operator: KJ



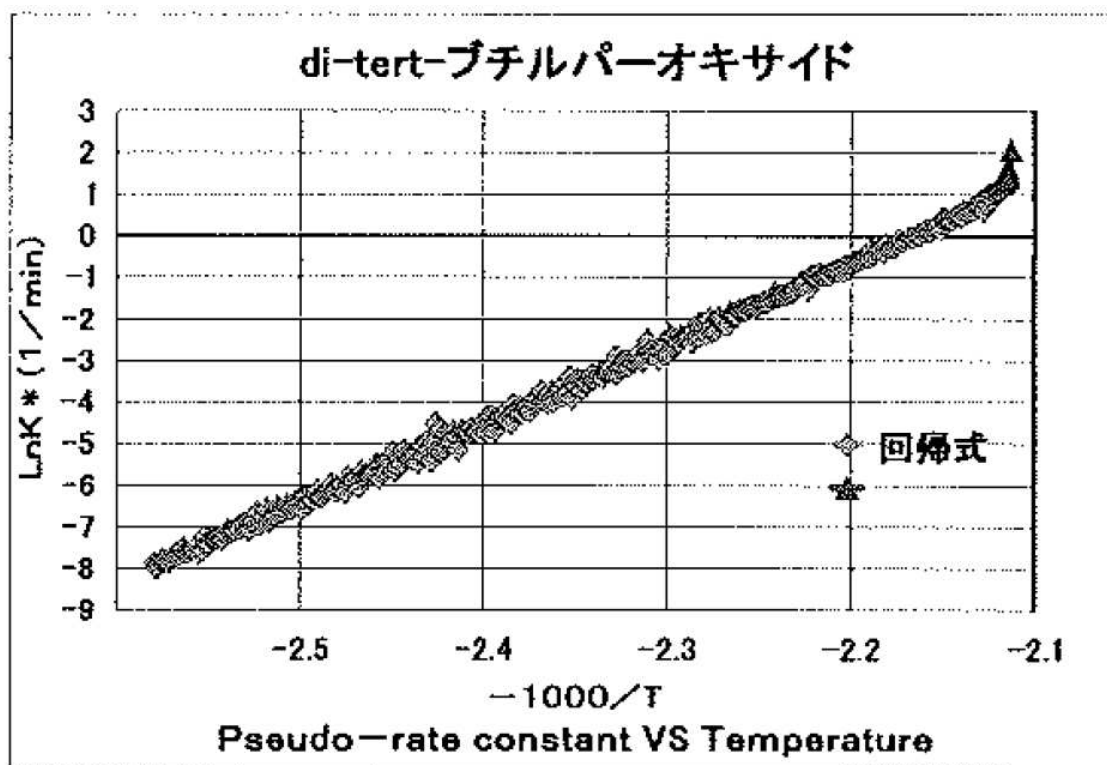
Time vs. Temperature and Pressure



Temperature vs. Self heating rate



TMR vs. Temperature



Arrhenius equation (approximate calculation)

	Date	2008/11/6
Measuring conditions	ARC device	ARC2000 (Arthur D. Little Inc.)
	Operating Institute	KJ
	Operator	KJ
	Material of Bomb	Ti
	Weight of Bomb (g)	8.995
	Volume of Bomb (mL)	about 9
	Weight of sample (g)	6.005
	Weight of residue (g)	—
	Specific heat of Bomb ($J K^{-1} g^{-1}$)	0.544
	Specific heat of sample ($J K^{-1} g^{-1}$)	2.093
	ϕ facotr	1.39
	Start temperature ($^{\circ}C$)	80
	End temperature ($^{\circ}C$)	250
	Temperature increment (K)	5
	Waiting time (min)	10

	Searching time (min)	10
	Exothermic threshold (K min^{-1})	0.02
	Logging intervals ($^{\circ}\text{C}$)	0.2 $^{\circ}\text{C}$
	Pressure limit (kPa)	17000
	Atmosphere	Air, atmospheric pressure
Results	T_o , Exothermic temperature ($^{\circ}\text{C}$)	114.54
	Self heating rate at T_o (K min^{-1})	0.033
	Pressure at T_o (kPa)	180
	Temperature at maximum self heating rate ($^{\circ}\text{C}$)	191.97
	Maximum self heating rate (K min^{-1})	13.25
	Pressure at maximum self heating rate (kPa)	2880
	Pressure rising rate at maximum self heating rate (kPa min^{-1})	907
	Maximum pressure (kPa)	3500
	Maximum pressure rising rate (kPa min^{-1})	907
	Temperature at maximum pressure rising rate ($^{\circ}\text{C}$)	191.97
	Time to maximum rate (min)	304.04
	Maximum temperature ($^{\circ}\text{C}$)	200.41
	Adiabatic temperature rise ($^{\circ}\text{C}$)	85.87
	Activation energy (kJ mol^{-1})	160
Heat of decomposition (J g^{-1})	251	
Corrected results	T_{ARC} , Exothermic temperature ($^{\circ}\text{C}$)	105.97
	Time of maximum rate at T_{ARC} (min)	435.04
	Self heating rate at T_{ARC} (K min^{-1})	0.02
	Maximum self heating rate (K min^{-1})	601.40
	Maximum temperature ($^{\circ}\text{C}$)	233.97
	Adiabatic temperature rise ($^{\circ}\text{C}$)	128.0
	Heat of decomposition (J g^{-1})	268