tert-Butyl perbenzoate $C_{11}H_{14}O_3$ TBPBZ
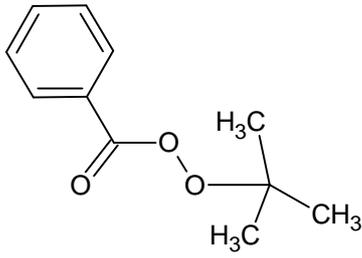

ARC device: ES-ARC (Thermal Hazard Technology)

Date: 2008/12

Operator: SCAS
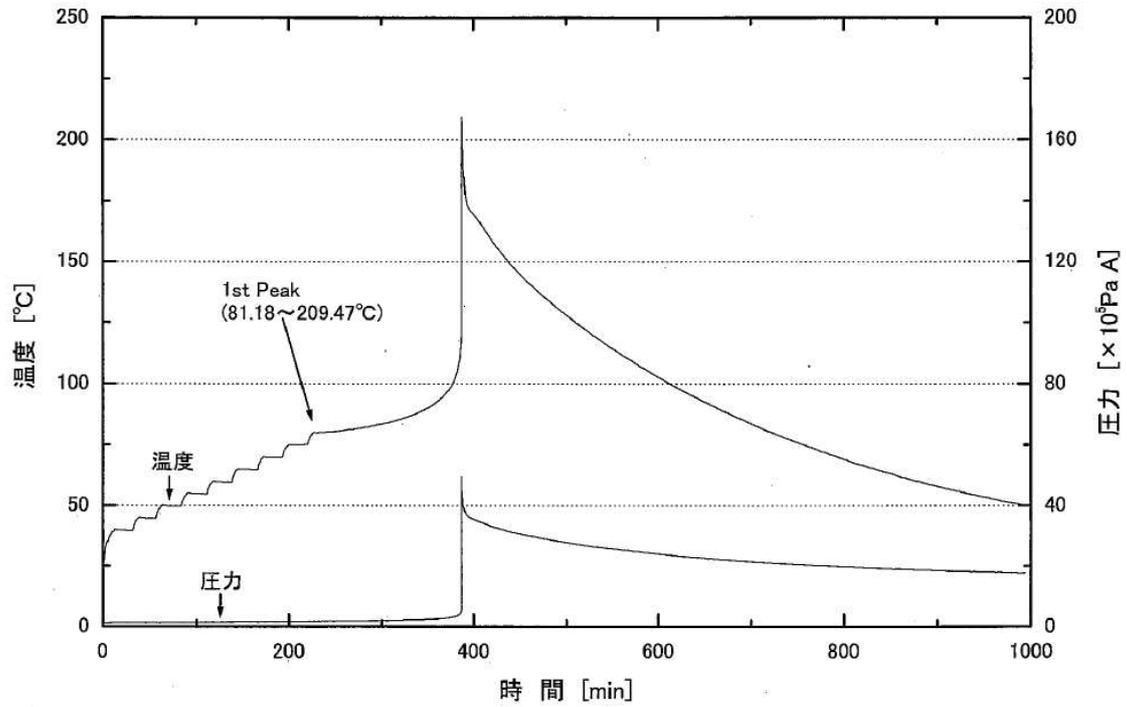
Time vs. Temperature and Pressure

Temperature vs. Self heating rate

TMR vs. Temperature

(1st) Y＝5.34743E+23・exp(-20047.29563X)
但し X＝1/(273.15+T[℃])

1st Peak

自己発熱速度 [℃/min]

温度 [℃]

ARCの感度 : 0.02 [℃/min]
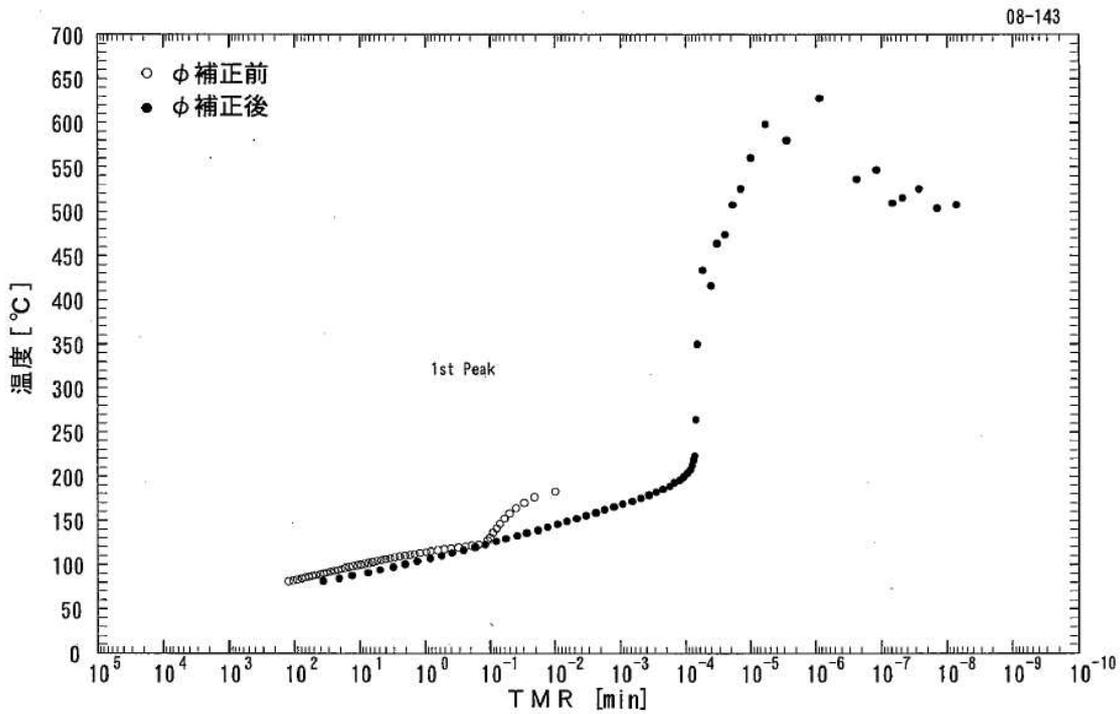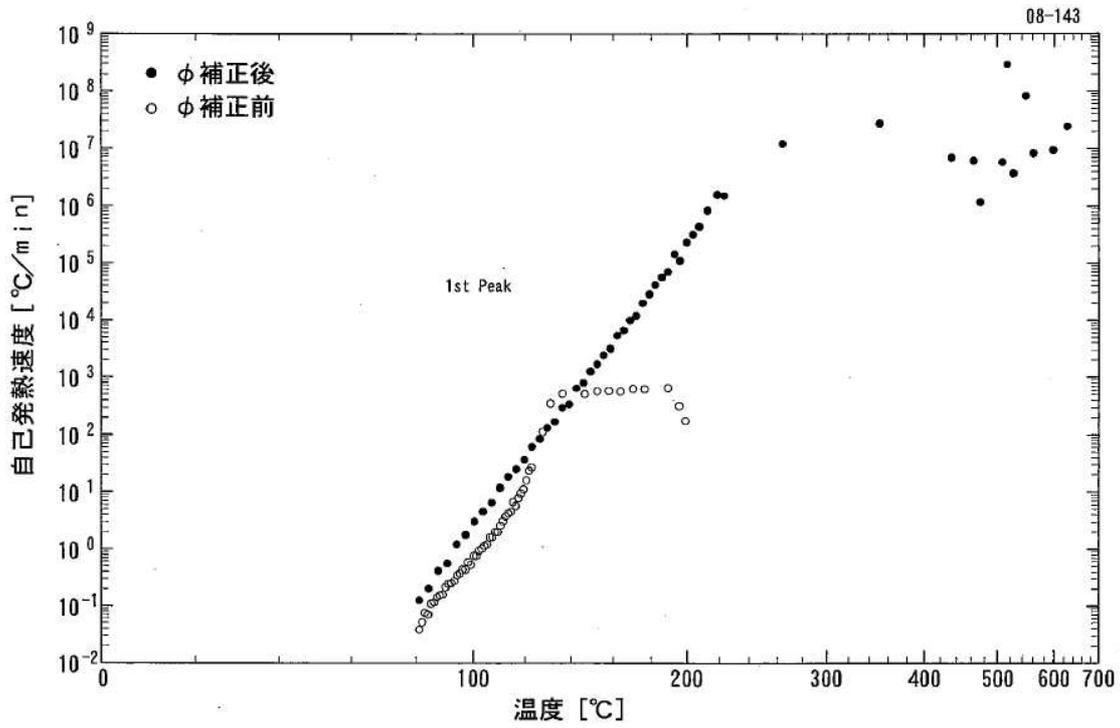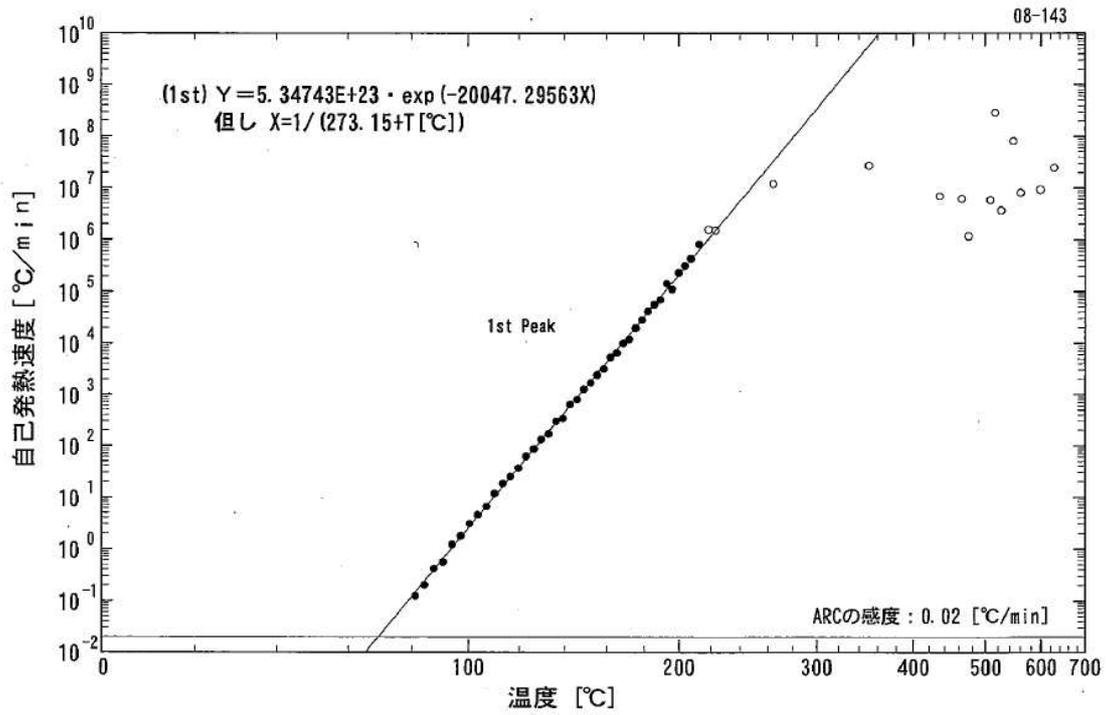
Temperature vs. Self heating rate (approximate calculation)

T M R [min]

1st Peak

Y＝3.37661E-22・exp(18745.74000/273.15+T[℃])

温度 [℃]
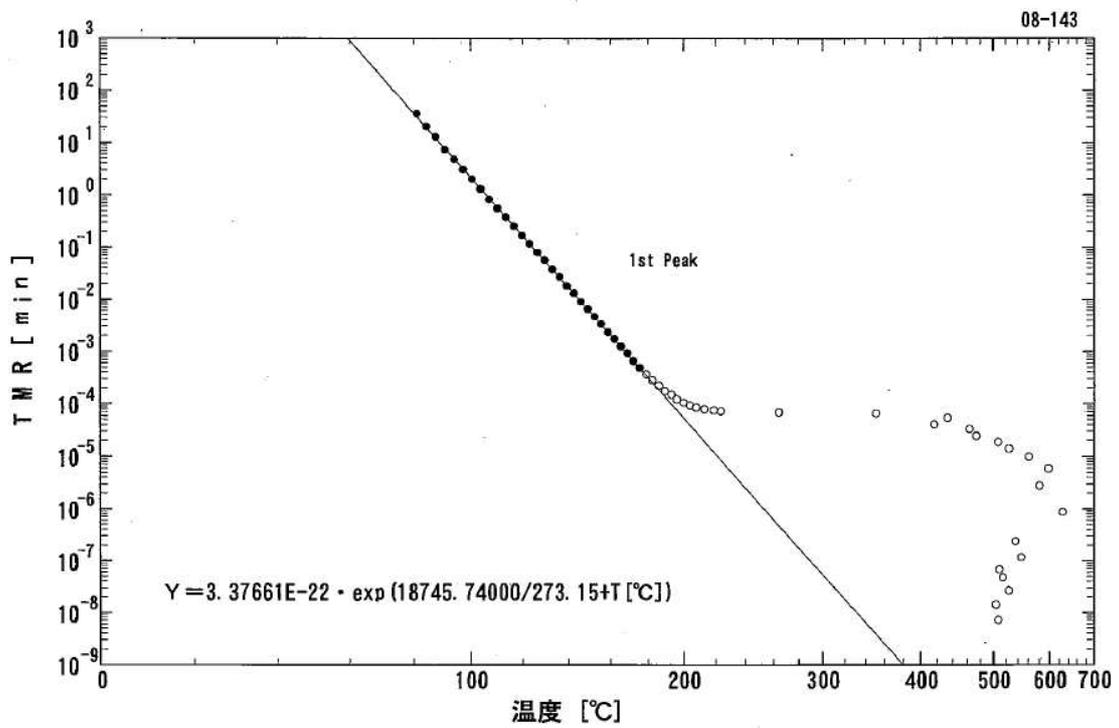
Temperature vs. TMR (approximate calculation)
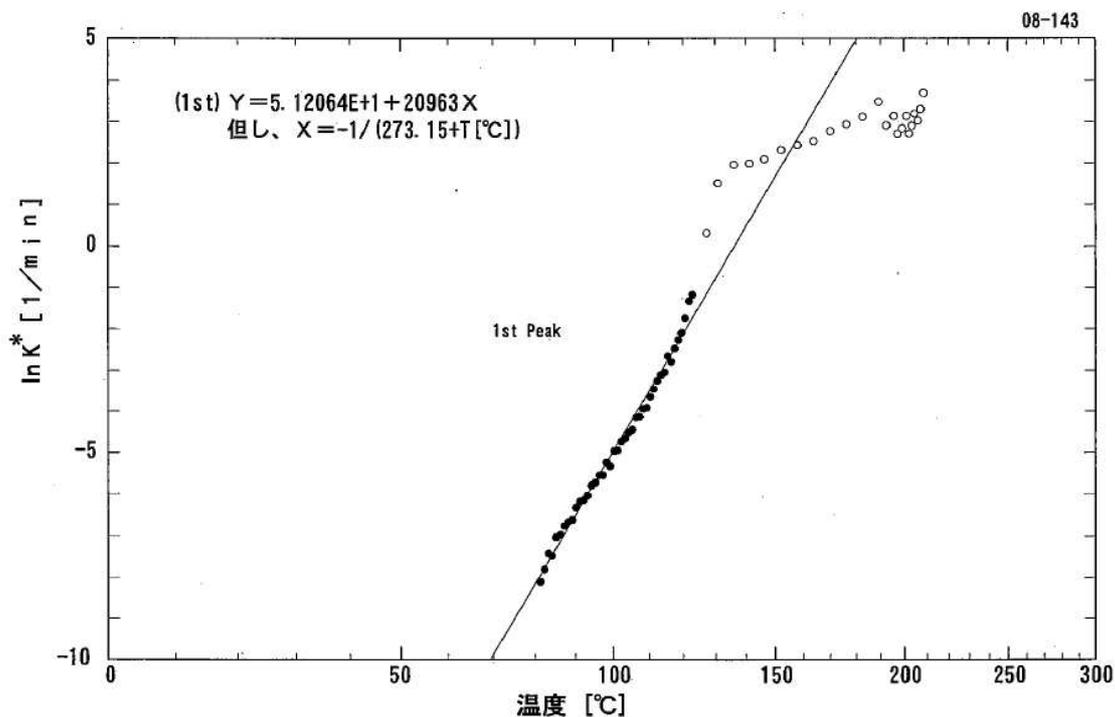
Arrhenius equation (approximate calculation)

	Date	2008/12/10
Measuring conditions	ARC device	ES-ARC (Thermal Hazard Technology)
	Operating Institute	SCAS
	Operator	SCAS
	Material of Bomb	Hastelloy C
	Weight of Bomb (g)	15.1942
	Volume of Bomb (mL)	about 9
	Weight of sample (g)	1.3756
	Weight of residue (g)	1.0010
	Specific heat of Bomb (J K^{-1} g^{-1})	0.419
	Specific heat of sample (J K^{-1} g^{-1})	2.093
	φ facotr	3.211
	Start temperature (℃)	40
	End temperature (℃)	209.47
	Temperature increment (K)	5
	Waiting time (min)	－
	Searching time (min)	10

	Exothermic threshold (K min^{-1})	0.02
	Logging intervals (℃)	1.0
	Pressure limit (kPa)	20000
	Atmosphere	Air, atmospheric pressure
Results	T_o, Exothermic temperature (℃)	81.18
	Self heating rate at T_o (K min^{-1})	0.039
	Pressure at T_o (kPa)	184.9
	Temperature at maximum self heating rate (℃)	189.11
	Maximum self heating rate (K min^{-1})	658.80
	Pressure at maximum self heating rate (kPa)	4652
	Pressure rising rate at maximum self heating rate (kPa min^{-1})	-10071
	Maximum pressure (kPa)	4368
	Maximum pressure rising rate (kPa min^{-1})	40980
	Temperature at maximum pressure rising rate (℃)	127.41
	Time to maximum rate (min)	124.99
	Maximum temperature (℃)	209.47
	Adiabatic temperature rise (℃)	128.29
	Activation energy (kJ mol^{-1})	174.4
	Heat of decomposition (J g^{-1})	862.4
Corrected results	T_{ARC}, Exothermic temperature (℃)	69.4
	Time of maximum rate at T_{ARC} (min)	202
	Self heating rate at T_{ARC} (K min^{-1})	0.02
	Maximum self heating rate (K min^{-1})	9.115×10^8
	Maximum temperature (℃)	497.4
	Adiabatic temperature rise (℃)	428.0
	Heat of decomposition (J g^{-1})	895.9