PRODUCT SPECIFICATION

Customer Name	AK-450
Product	
Designed for	
Part No.	
Issue Date	
Spec No.	
Version	

Customer Approved By	Check	Inspect	Design

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Document Series Number: Q0044M-02
File Name: Q0044M-03 akasa-E-AK450.doc
Report Date: 2002/06/11

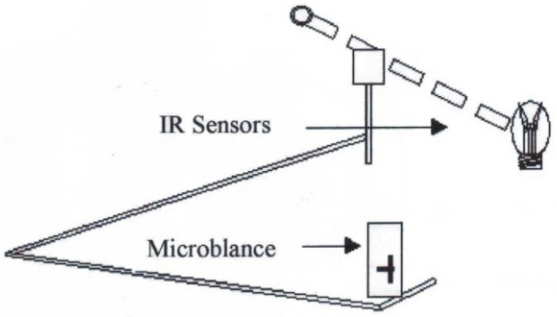
Akasa Test Report

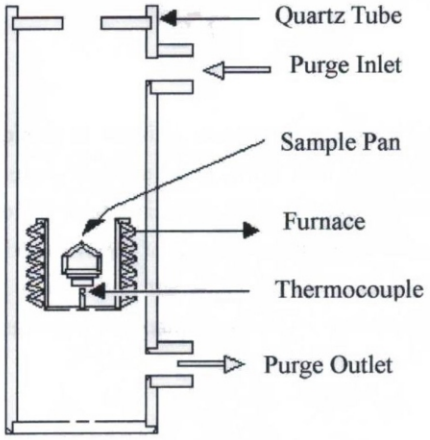
Instrument：

TGA （Thermogravimetric analyzer）

Theory：

TGA is a instrument which measures the weight change of the sample under the conditions of temperature ramp or isothermal , in order to characterize the properties and compositions of the sample. There are two major parts in TGA：temperature control unit and balance unit. Based on the combination of the two important units , the weight change of the sample under different temperature condition can be recorded.





Analyst：Carol Chen 6.11 Check：Peggy 6/11 Administrator：Laura Kao 91.06/11

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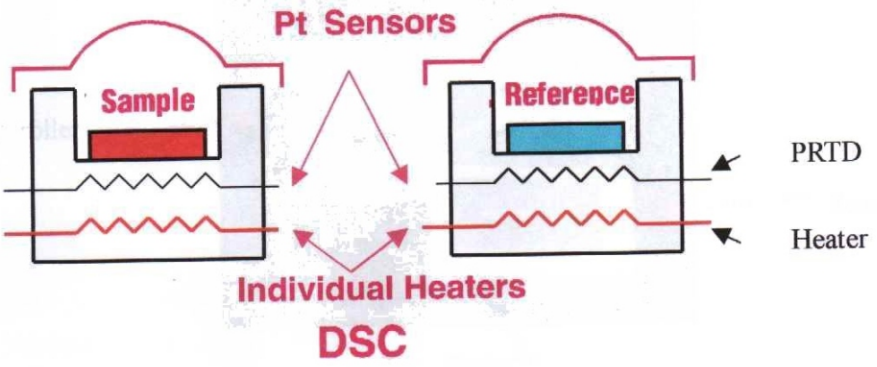
Instrument:

DSC(Differential Scanning Calometry)

Theory:

DSC measures the enthalpy change of the sample in the furnace,which is programmed as temperature ramp or isothermal condition, and purged gas at constant rate in order to maintain the atmosphere. The data is recorded as the energy change between the sample and reference continuously.

Power Compensation DSC



As the sample is in melting, evaporation, crystallization, phase change or some physical and chemical change, they are often along with endothermal or exdothermal reaction, which makes the change of thermal resistance or temperature between sample side and reference side. These signals will be converted to the thermal analysis data, and thus we can refer the properties of the sample. In a short word, the applications of the DSC are to measure the energy change of the sample during some temperature conditoin, which can help us refer the properties of the sample.

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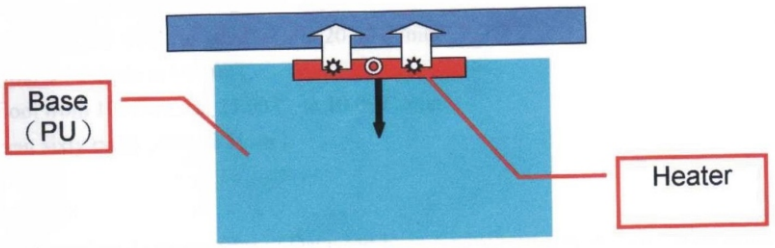
Instrument:

TC Probe(Thermal Conductivity Probe)

Theory:

The theory of the TC Probe is using three parallel thin nickel filaments,which offer uniform and steady heat flow to the sample, and measure the temperature change on the surface.Because the rising rate of temperature on the surface of the sample is related to the thermal conductivity,the sample with higher thermal conductivity will transfer heat faster.Thus the heat offered by the filaments will be carried away very fast,and the rising rate of temperature on the surface of the sample becomes slower.In contrast,the sample with low thermal conductivity, for example, isolation materials which dissipate heat slowly,will be heated to higher temperature easily by filaments.

TC Probe™



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【3】Thermal Conductivity

Instrument used： TC Probe

Analysis date： 2003/06

Analyst： Carol Chen

Calibriation file： cal-0602

Analysis parameters：

(1) Test duration: 36.0 s
(2) Sampling rate: 100 Hz
(3) Starting time: 9.0 s
(4) Cooling period: 2 mins

Analysis results：

	ρ (kg/m^3)	Specific Heat Cp(J / kg.k)	Average K (W/m.K)	Average K (W/m.℃)
AK450	2550	589	0.7754	9.2428

W/m.℃=A（W/m.K）

1/℃=A（1/K）

1/K-273=A（1/K）

A=K/K-273

（Temperature=25℃）

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calibration function. The blank solution and the standard solutions are prepared of the same amounts of acids as it is expected from the sample solutions.

Result：(*Unit in ppm*)

Sample NO / Element	Blank	QC	Reagent blank	AK-450	n.d./QC
Ag	n.d.	99.1 99.1%	n.d.	497400	10.0/100
Si	n.d.	99.46 99.5%	n.d.	4027	5.00/100
Ti	0.007	0.478 95.6%	0.007	1.105	0.05/0.50
Na	0.000	0.975 97.5%	n.d.	26.39	0.10/1.00
Pb	0.001	0.502 100%	0.000	19.49	0.05/0.50
Cd	n.d.	0.500 100%	n.d.	1.481	0.05/0.50
Fe	n.d.	0.498 99.6%	n.d.	6.332	0.05/0.50
B	0.003	0.489 97.8%	0.002	1.646	0.05/0.50
Cr	n.d.	0.499 99.8%	n.d.	1.117	0.05/0.50
Mg	0.002	0.513 103%	0.002	20.91	0.05/0.50
Ca	n.d.	0.545 109%	n.d.	17.82	0.05/0.50
Al	0.001	0.514 103%	0.001	4.905	0.05/0.50
K	n.d.	0.502 100%	n.d.	0.146	0.05/0.50

Operator: Laura Kao 03/06/25 Examiner: Carol Chen 6/25 Administrator : peggy