Force Tensiometer – K100

Specifications

Product group specifications	K100C	K100	K100SF
Force measurement			
Maximum load	220 g	210 g	6 g
Resolution	100 µg	10 µg	0.1 µg
Measurement rate		50 Hz	
Adjustment	automated, external weight	fully automated	fully automated
Adjustment weight	CP0503: 100 g [1]	internal weight	internal weight
Locking mechanism		automatic	
Sample stage			
Travel distance		>110 mm	
Simple platform		optional	
Thermostated jacket		50 mm, 70 mm or 100 mm [1]	
Vessel for inverse CMC		cone-shaped vessel [1]	
Integrated sample stage		yes	
Drive			
Resolution		16 nm	
Travel speed		0.1 to 500 mm/min	
Type of motor		brushless DC servo motor	
Optical height sensor			
Resolution	–	0.1 µm	0.1 µm
Software			
ADVANCE		surface tension (SFT)/interfacial tension (IFT) [1]	
		contact angle [1]	
	critical micelle concentration (CMC) [1]	critical micelle concentration (CMC) [1]	–
		liquid density [1]	
	solid density [1]	solid density [1]	–
	-	sedimentation/penetration [1]	–

[1] optional

Measurement specifications	K100C		K100		K100SF	
Du Noüy ring						
Results	surface tension (SFT)/interfacial tension (IFT)/critical micelle concentration (CMC)					
Range	1 to 2000 mN/m		1 to 2000 mN/m		1 to 400 mN/m	
Resolution	0.01 mN/m		0.001 mN/m		0.0001 mN/m	
Correction methods	Harkins-Jordan, Huh-Mason, Zuidema-Waters, linear correction, no correction					
Rod method						
Results	SFT/IFT/CMC					
Range	1 to 2000 mN/m					
Resolution	0.2 mN/m		0.02 mN/m		0.002 mN/m	
Wilhelmy plate [2]						
Result(s)	SFT/IFT/CMC	contact angle (CA)	SFT/IFT/CMC	contact angle (CA)	SFT/IFT/CMC	contact angle (CA)
Range	1 to 2000 mN/m	0 to 180°	1 to 2000 mN/m	0 to 180°	1 to 700 mN/m	0 to 180°
Resolution	0.02 mN/m	0.01°	0.002 mN/m	0.01°	0.0002 mN/m	0.01°
Types	–	advancing, receding [3]	–	advancing, receding [4]	–	advancing, receding [5]
Washburn						
Result	contact angle (CA)					
Range	0 to 90°					
Resolution	0.01°					
Type	advancing					
Surface free energy of solids						
Result	surface free energy					
Models	equation of state, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, extended Fowkes, acid-base theory					
Liquid density						
Range	1 to 2200 kg/m³		1 to 2200 kg/m³		1 to 2200 kg/m³	
Resolution	1 kg/m³		0.1 kg/m³		1 kg/m³	
Precision	±3 kg/m³		±3 kg/m³		±3 kg/m³	
Solid density						
Range	1000 to 20000 kg/m³		1000 to 20000 kg/m³		–	
Resolution	1 kg/m³		1 kg/m³		–	
Precision	±3 kg/m³		±3 kg/m³		–	
Sedimentation						
Result	–		graph: mass vs. time		–	
Penetration						
	–		graph: mass vs. time		–	

[2] general & single side Wilhelmy plate method possible
[3] >200 µm
[4] >20 µm
[5] >5 µm

General specifications	K100C		K100	K100SF	
Temperature control					
Types	a. liquid	b. electrical	c. Peltier	a. liquid	b. Peltier
Range	a. -10 to 130 °C	b. 50 to 300 °C	c. -15 to 130 °C	a. -10 to 50 °C	b. -15 to 50 °C
Temperature measurement					
Range	-60 to 450 °C				
Resolution	0.01 °C				
Precision	±0.05 °C				
Accuracy	±0.5 °C				
Internal sensor	sample stage				
External sensor	sample vessel [1]				
Housing and peripherals					
Built-in and software-controlled ionizer	–		yes	yes	
Built-in bubble level	yes				
Glass windshield doors	yes				
Stainless steel measuring compartment	yes				
Control pad	yes				
Touch panel	optional		optional	–	
Environment					
Operating temperature	15 to 30 °C				
Humidity	> 30% without condensation				
Instrument dimensions					
Footprint	300 mm × 390 mm (W × D)				
Height	585 mm				
Weight (without accessories)	19 kg		23 kg	24 kg	
Power supply					
Voltage	100 to 240 VAC				
Power consumption	40 W				
Frequency	47 to 63 Hz				
Interfaces					
PC	USB 2.0				
Auxiliary	RS232				
Thermostat	external (optional)				
Inert gas	yes				

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