BELQCM

Nano-sensing adsorption process analysis

BEL JAPAN, INC.

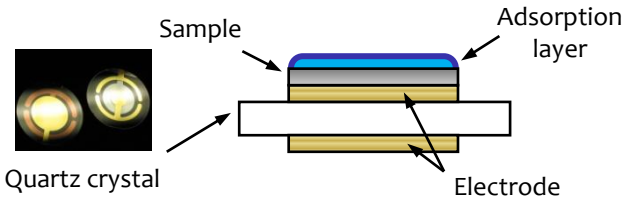
Features

- ✓ NANO gram order measurement
- ✓ Real-time monitoring of the adsorption kinetics by frequency change
- ✓ Simultaneous 6 samples measurement

BELFLOW BELQCM

Principal

Quartz crystal microbalance (QCM)는 수정 진동자의 진동수 변화를 측정하여 단위 면적 당 흡착 질량을 측정합니다.



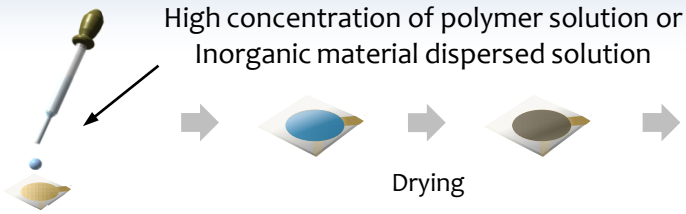
Adsorption/desorption

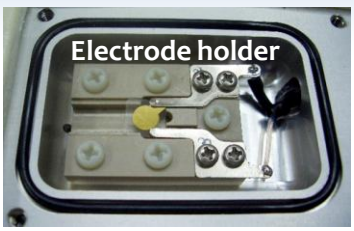
↓

Frequency decrease/increase

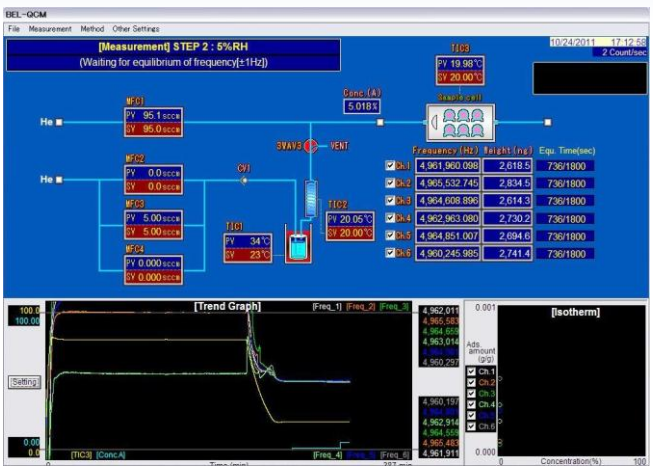
Theoretical resolution: 0.55 ng/cm² = 0.1 Hz

Sampling

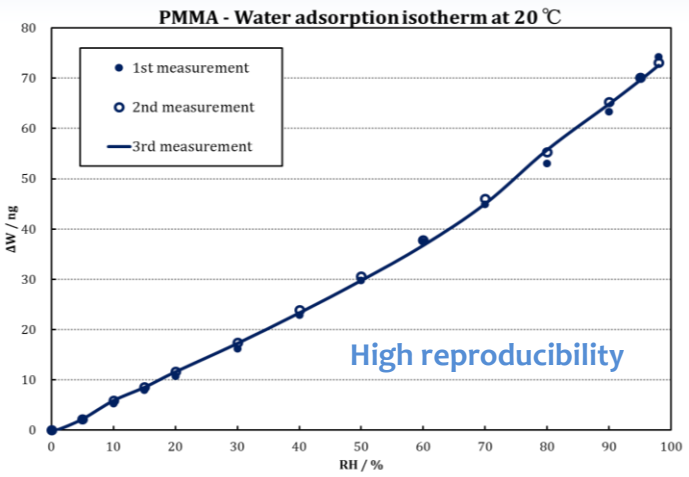




Software



Result



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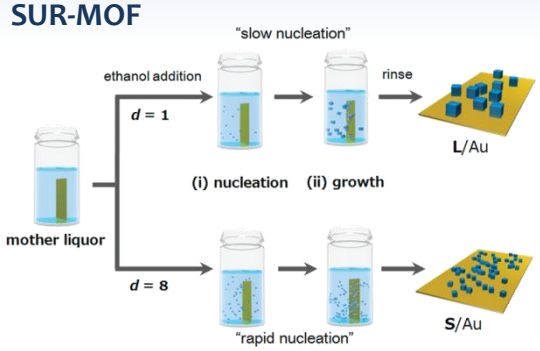
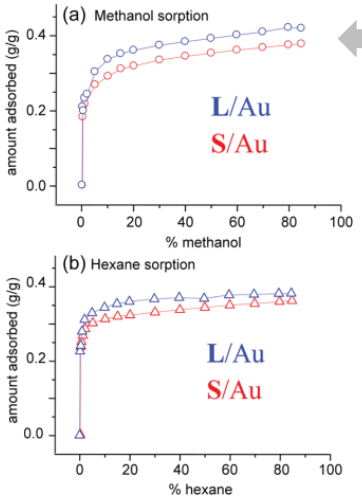
Applications

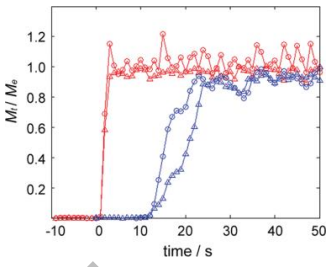
[1] **S. Kitagawa**, *J. Am. Chem. Soc.*, **2011**, *133 (31)*, 11932 [2] M. Asai, *J. Am. Chem. Soc.*, **2011**, *133 (38)*, 14880

1 SUR-MOF



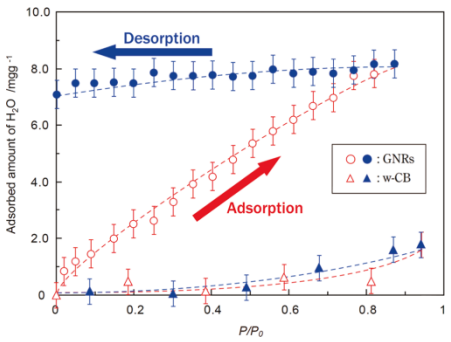


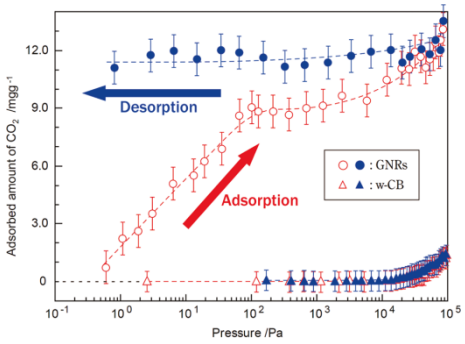
Gold 코팅된 QCM substrate에 porous nanocrystal을 deposit 시킨 후 측정한 methanol, hexane 의 흡착 등온선 (298 K)



Time-dependent mass uptake

2 Graphite Nanoribbon





Graphite nanoribbon과 Carbon black의 흡착 등온선 (위) H_2O, 298 K
(아래) CO_2, 303 K

Specifications

BELQCM

Model	Single sample (1 holder)	multi samples (6 holders)
Temp. range	10 to 80 ℃	
Pretreatment	Max 80 ℃	
Resolution	1.23 ng/cm² = 0.1 Hz (6 MHz)	
Crystal oscillator	Material: Gold / Frequency resolution: 0.001 Hz / Electrode area: 19.6 mm (5 mmφ) Measurement weight: Max. 20 μg (sample + adsorption amount)	
Power	AC 100-120 V or 200-240 V	
Dimension	W320×D450×H320 (W200×D250×H195)	W550×D450×H380 (W340×D280×H220)

BELFlow
Adsorption gas, vapor controller

Model	BELFlow-1 (standard)	BELFlow-2 (Low conc.)	BELFlow-3 (mixing vapor)
Concentration (humidity) range	0, 2 - 95 vol% (%RH)	0, 0.02 - 95 vol% (%RH)	0, 0.02 - 95 vol% (%RH)
Condenser temp. range	10 to 80 ℃		
Max. flow	100 sccm	100 sccm	200 sccm
Adsorbate	H_2O, Alcohol, Hexane, CO_2 and etc.		
Computer	Windows series (256 MB main memory or more)		
Power	AC 100-120 V or 200-240 V		
Dimension	W320×D450×H400	W360×D530×H400	W570×D670×H1100

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