

## Binary Gas Adsorption

# BELSORP-BG

### [Features]

Analysis of binary gas adsorption isotherms of mixed gases of different molecular weight

Measuring condition    Pressure : vacuum ~ max. 15MPa (150bar)

Temperature : 0 ~ max. 250°C

High resistance against corrosive gases

### [Method]

Combination of Gravimetric and Volumetric methods



BELSORP BG measures automatically the adsorption isotherms of pure gases component from the adsorbed amount of mixed gases including corrosive gases of different molecular weight under low and high pressure (max. 15MPa) and high temperature. It uses 3-position magnetic suspension balance developed by RUBOTHERM GmbH (Germany) and measures gas density for buoyancy correction simultaneously. Correction of weight zero and buoyancy can be carried out automatically in-situ during measurement. Therefore, highly stable and reliable data can be obtained even in a long measurement. Our original gas dosing system makes it possible to measure under any desired equilibrium pressure

## < Specification >

Gas	N <sub>2</sub> , O <sub>2</sub> , H <sub>2</sub> , Ar, CO <sub>2</sub> , CO, CH <sub>4</sub> , hydrocarbons, H <sub>2</sub> O, CH <sub>3</sub> OH, H <sub>2</sub> S, benzene, amines and etc.
Materials used inside the measuring system	Au, SUS316, graphite, Vespel, Pyrex, perfluor rubber, (Viton)
Gas dosing ports	1) Gas 3 ports 2) Vapor 2 ports
Pressure range	1.3x10 <sup>-1</sup> kPa (1x10 <sup>-2</sup> Torr)~15 MPa (150 bar)*1)
Max. number of pressure sensors	4 unit (MKS628, Druck PDCR910)
Vacuum pump	R.P. (+ Option : TMP 50 L/sec)
Ultimate pressure	below 1.3 Pa (1x10 <sup>-2</sup> Torr)
Vacuum gauge	pirani gauge(Option : Cold cathode gauge)
Sample weight	Max. 15g, 20 ml (for gravimetric measurement)
Magnetic suspension balance	3-position MSB
max. temperature	100°C or 250°C
resolution	10 μg
reproducibility	±20 μg (STD)*2)
Density measurement	Titanium sinker 20g (4.5 cm <sup>3</sup> )
resolution	0.002 kg/m <sup>3</sup>
accuracy	±0.02 kg/m <sup>3</sup>
Preheating temperature	Max. 500°C (below ambient pressure)
Measurement temperature	0~170°C (F25-HD), RT~250°C (TD-6), -10~250°C (TD-6+F32-MV)*3)
Air bath temperature	Max. 80°C (cold spot 65°C at set value 80°C)
Line heater	200°C
Computer hardware	Personal computer (Windows 98/95) with 4 x RS232C ports 1024x769 display capability
Measuring software	One component gas adsorption, Binary component gas adsorption, Pre-adsorption, Density measurement
Analysis software	Henry, Langmuir and Freundlich equation
Dimension	Main unit W800xH1650xD700mm Balance table W500xH1300xD600mm
Power supply	AC 220V 3kW

\*1) Maximum pressure of vapor adsorption measurement is the saturation pressure of the liquids used at 65°C.

\*2) Reproducibility and accuracy is only of the balance. This does not include error caused by environmental vibration, density fluctuation and connection flow.

\*3) It is necessary to choose a proper kind of oil depending on the measuring temperature. (-10~50°C and 50~250°C)

This apparatus may be subject to modification of appearance and / or specification.

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