

Adsorption behavior study under high pressure

High pressure gas sorption measurement

BELSORP HP

Features

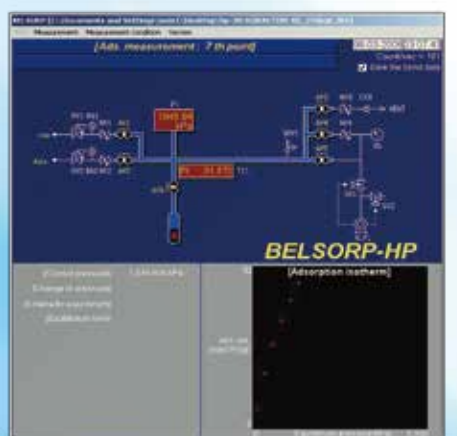
- High pressure gas sorption measurement (13.5MPa Max.)
- Compact design
- Gas separation, CO₂ removal (CCS, CCUS) ,
Energy storage (H₂: PCT-curve, CH₄)

Overview

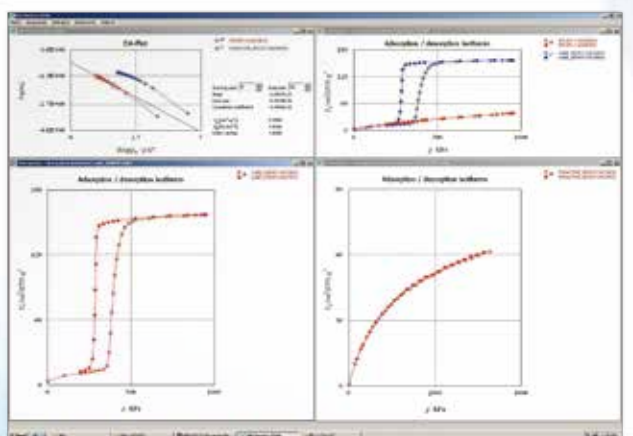
The importance of high pressure adsorption measurement is growing in various industries, hydrogen or methane storage, pressure swing adsorption (PSA), CO₂ absorption into hypolymer, etc. But the instruments for measuring high pressure gas sorption are large-size, expensive and hard to use. BELSORP HP is a small foot print bench-top type instrument. Also low price and easy to operate. Over years of our experience in adsorption science results in its technology. BELSORP HP would provide the useful information with the researchers in both research and industrial fields.



● Software



● Measurement Example



Features

● High pressure adsorption measurement up to 13.5MPa

High precision pressure transducers enable gas sorption measurement with high accuracy.

● Compact bench-top type

● Easy to use

Just with simple operation and parameter setting, adsorption measurement can be performed automatically. Displayed valve status, pressure values and a real-time isotherm on the screen, the measurement progress can be checked easily.

● A variety of measurement/pretreatment temperature control systems from 77K to 400°C

Heater	:For temperature range 50~400°C.
LN ₂ controller	:For temperature 77K(LN ₂) and 87K(Ar). Liquid coolant level can be controlled.
Water bath	:For temperature range -10~70°C*.

※Temperature range depends on the refrigerated/heating circulator provided at the customer's site.

● JIS H7201 compliant

Analysis software

● BELSim™

BELSim is a powerful analysis software. Various analytic approaches are available.

● BELDyna™ (Rate of Adsorption)

Adsorption rate is an important factor which indicates the dynamic behavior of adsorption.

BELDyna™ can create the graph of concentration changes against time.

In addition to that, the pore diffusion coefficient and mass transfer coefficient (LDF) can be obtained.

These values are useful for kinetic study of adsorption.

Specifications

Measurement principle	Volumetric adsorption method	Analysis software (BELMaster™)	Adsorption / desorption isotherm BET method Langmuir method Horvath-Kawazoe method Saito-Foly method Micropore volume by DA method Isosteric heat of adsorption (Clausius-Clapeyron equation) (Option: BELDyna™ - Adsorption rate analysis software)
Adsorptive	N ₂ , Ar, O ₂ , CO, H ₂ , CO ₂ , CH ₄ and other non-corrosive gas	Dimensions, Weight	600(W) × 910(H) × 750(D) mm, 90 kg
Analysis / pretreatment port	1	Utility	Gas He: Pres. 0.2 bar (Gauge) (Joint: 1/8" Swagelok) Compressed air: Pres. 4~5 bar (Gauge) (Joint: quick connect for 1/4" plastic (teflon) tube) Power AC100~120, 200~240V/ 500W
Pressure transducer	Full scale : Select one among F.S. 1, 1.5, 2, 3.5, 13.5MPa (133kPa for low pressure measurement can be added) Accuracy : 0.08%F.S.		
Measurement pressure range	85% of pressure transducer F.S.		
Temperature range	-60~400 °C		
Measurement software	Adsorption / desorption isotherm measurement and adsorption kinetic.		

· A personal computer, an oil vacuum pump and a refrigerated/heating circulator (when water bath is selected) would be provided at the customer's side.
· Due to our policy of continuous product improvement, the specifications and information are subject to change without notice.

※Specifications and appearance of the products listed are subject to change without notice.

※Products (goods and services) described in the catalog, depending on the destination and application, might be applicable to export regulations, etc. by the "Foreign Exchange and Foreign Trade Control Law".

In response to the review of the Japanese government regarding the export of products (goods and services), permission and approval, and the like, must be obtained according to the regulations.

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