

BEL-METAL

Metal dispersion rate and metal surface area evaluation



Specialized in pulse titration

Compact and inexpensive

—BEL-METAL-1

High-throughput measurement

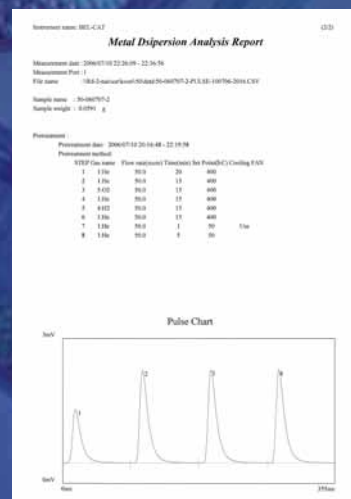
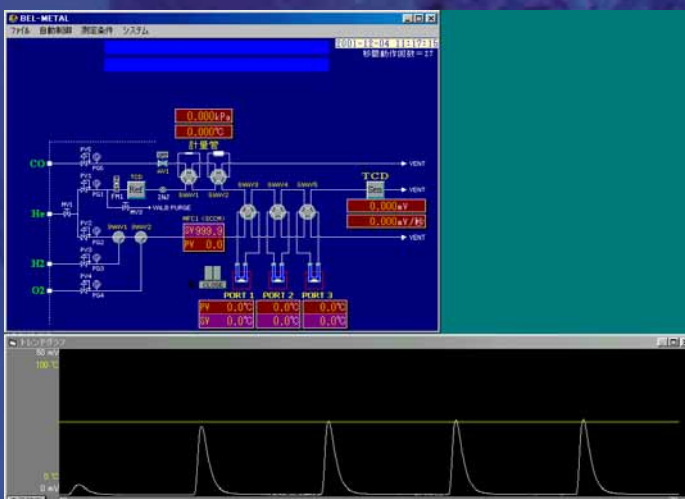
—BEL-METAL-3

Metal supported catalysts are used in a variety of industrial fields – catalytic converter, liquid fuel synthesis from CO and H₂ (Fischer-Tropsch reaction), catalytic reforming of naphtha, electrode catalysis of fuel cell, etc. Metal dispersion rate is one of the important factors to evaluate the metal supported catalyst. It is calculated from the chemisorption amount of CO or H₂, etc.

BEL-METAL series is specialized in chemisorption measurement using pulse titration method. There are two models in the BEL-METAL series.

- BEL-METAL-1 : Small foot print and inexpensive model.
- BEL-METAL-3 : High-throughput measurement. Three samples can be measured simultaneously.

Both systems perform the pretreatment and measurement automatically and will provide highly accurate and reproducible data with simple operation.



BEL
BEL JAPAN, INC.
Specialist in Adsorption

FEATURES

● Automatic measurement

Pretreatment and measurement can be performed automatically. The possibility of human error can be reduced and provides stable results.

● Quick cooling fan remarkably reduces the measuring time

Both systems have forced cooling fans for each measurement port and shorten the measuring time.

● Pulse titration at low temperature (OPTION)

In case of ceria-based metal catalysts, the pulse titration measurement is often performed at low temperature, to avoid adsorptive gas such as CO from being adsorbed into the support bulk. By using the optional refrigerated/heating circulator bath, it is possible to perform pulse titration measurement from -20 °C.

● Ammonia chemisorption amount measurement (OPTION)

SPECIFICATIONS

	BEL-METAL-1	BEL-METAL-3
Measurement principle	Dynamic flow method	
Detector	Thermal conductivity detector (W-Re filament)	
Measurement/Pretreatment port	1	3
Gas port		
Carrier gas	1 (He or Ar)	1 (He or Ar)
Pretreatment	4 (H ₂ , O ₂ , CO, H ₂ , etc.)	3 (H ₂ , O ₂ , etc.)
Adsorption / Pulse		2 (CO and H ₂)
Gas flow control	Needle valve for pretreatment Capillary for carrier	2 x MFC (Carrier and pretreatment)
Electric furnace	1	3
Range	RT - 800 °C (OP. 1200 °C)	RT - 800 °C (OP. 1200 °C)
Ramp rate [50-500 °C]	70 °C/min	
[500-1000 °C]	30 °C/min	
Quick cooling	✓ [1000→100 °C] 90min	✓ [1000→100 °C] 60min
Physical	W280 × D600 × H600 50kg	W600 × D700 × H720 120kg

- Due to our policy of continuous product improvement, the specifications and the information are subject to change without notice.



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SORPTION INSTRUMENTS



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