

Flow Chemisorption Analyzer

Autosorb 3300



All of the Insight. None of the Complexity.

Engineered for the safest and most precise measurements of catalyst properties, Autosorb 3300 is the new standard in fully automated flow chemisorption analysis.

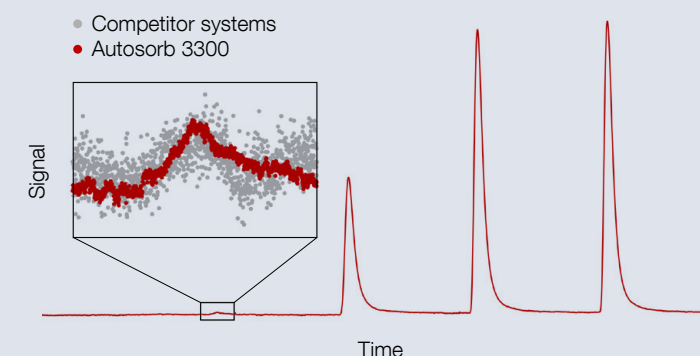
Autosorb 3300 features an ultra-sensitive four-filament TCD with leading baseline stability and signal-to-noise ratio for robust measurement performance. Four built-in titration loops ensure convenient, precise, and reproducible gas injections. An innovative heating solution enables a completely hands-free experience and outstanding sample temperature control, while automatic leak detection and gas-blending warnings provide active user protection and maximize operator confidence.

From research laboratories to industrial quality assurance and quality control, Autosorb 3300 delivers precision in every pulse and confidence in every result.



Autosorb 3300 is your streamlined solution for pulse titration and temperature-programmed analysis:

- ✓ Inject automatically from one of the four pressure- and temperature-controlled titration loops for calibration peak repeatability better than 99.5 %.
- ✓ Detect active areas smaller than 0.03 m² of platinum.
- ✓ Start your next analysis faster with furnace heating up to 100 °C per minute and cooling from 1,200 °C to 50 °C in 30 minutes.
- ✓ Continuous liquid-circulation cooling ensures the furnace maintains a safe-to-touch surface temperature, even when operating at 1,200 °C.



Autosorb 3300 detects titration peaks other systems cannot – because of its stable baseline and high signal-to-noise ratio.



Find out more

The New Benchmark for Usability

This radical reduction in touchpoints accelerates training, reduces user-to-user variability, and keeps your lab moving efficiently without constant operator oversight.

Autosorb 3300 redefines simplicity with a workflow that eliminates nearly every manual action. From automatic cell connection and leak checking to fully automated furnace positioning and loop selection, the instrument removes the need for hands-on adjustments. Operators simply place the sample cell assembly into the furnace and click “Start” – nothing more.

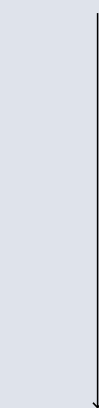
Workflow comparison

Other systems

1. Open furnace
2. Remove tube stoppers
3. Slide collar onto tube
4. Add O-rings to tube openings
5. Insert tube into upper panel
6. Align thermocouple
7. Push tube into sample port
8. Lock with side lever
9. Clamp thermocouple (if external)
10. Close and latch furnace
11. Start
- ✓ Done!

Autosorb 3300

1. Place capped sample cell into furnace
2. Start



✓ Done!



Key benefits

- Fewest required user interactions of any analyzer
- No user calibrations
- No swapping loops; the instrument does it for you
- No unnecessary repeated runs, because of automatic cell connection, detection and leak checking

Superior Chemisorption by Design

Discover the key components responsible for improved chemisorption results.

Titration loops

Four built-in calibrated loops with automatic switching deliver maximum titration flexibility without the need for syringes, needles, and septa. Control of pressure and temperature ensures accurate and reproducible volume injections of pulse titration gases.

Furnace

The one-of-a-kind rapid heating and cooling furnace incorporates a closed-circuit liquid cooling system. It seals the sample cell into position, eliminates manual opening and closing, and ensures totally safe outside temperatures – even when the inside is red hot.

TCD

The four current-controlled and chemically-resistant filaments are housed in a temperature-stabilized block that delivers high sensitivity, low noise, and reproducible signals with stable baselines. Short flow paths combined with flow-through-type filaments ensure rapid transit times and minimum peak spreading.

Kaomi React

Control all measurement parameters with the Kaomi React method builder. Use the built-in methods or customize them to reproduce your existing protocols, and share them with your cohorts using simple import and export functions. Detailed data analysis is done in the same software, and features comprehensive peak integration, deconvolution, and report generation.



Autosorb 3300	
Applications	
Petrochemical catalysts	Petroleum cracking, oxidation, hydrocarbon reforming, steam reforming, water-gas shift
Catalyst regeneration	Coked and sintered (used) catalysts
Hydrogen generation	Ammonia decomposition, electrolysis electrodes
Fuel cells	Redox electrodes
CO ₂ capture and utilization	Solid bases e.g., amine functionalized, hydrogenation catalysts
Performance specifications	
Measurement types	TPR, TPO, TPD, TPSR, pulse titration, breakthrough curves
Analysis types	Active metal area, dispersion, crystallite size, activation energy, acid site strength, quantitative desorption, peak fitting and deconvolution
Injection repeatability	< 0.4 % of loop volume
Peak temperature reproducibility	< 0.8 %
Active area reproducibility	4 % (measured on 2 % platinum on alumina reference sample)
Technical specifications	
Furnace	Safe touch (surface temperature never more than 32 °C above ambient)
Sample temperature range	40 °C to 1,200 °C
Furnace heating rates	40 °C to 800 °C: up to 100 °C per minute 800 °C to 1,000 °C: up to 50 °C per minute 1,000 °C to 1,200 °C: up to 25 °C per minute
Minimum heating rate	0.08 °C/min
Furnace cooling type	Closed-circuit liquid circulation
Cooling rate	800 °C to 50 °C in 26 minutes, 500 °C to 50 °C in 22 minutes 400 °C to 50 °C in 20 minutes, 100 °C to 40 °C in 12 minutes
Detector	Four-filament W/Re TCD (ammonia and oxidation resistant) with bypass valve
Injector loops	4 built-in (145 µL, 275 µL, 525 µL, 1,125 µL nominal)
Gas blending	Built-in using two MFCs (50 sccm each)
Analysis/carrier gas inputs	6 (1 inert, 4 standard, 1 PFE)
Injector/blend gas inputs	6 (1 inert, 4 standard, 1 PFE)
Gas input compatibility	Inert: He, Ar, and other inert gases Standard: Inert + N ₂ , CO ₂ , CO, H ₂ , O ₂ , N ₂ O PFE: Standard + CH ₄ , NH ₃
Heated valve box	50 °C (stability ±0.3 °C)
Sample cell	Quartz U-tube with 3 mL sample capacity, with bypass valve
Vapor trap	Standard dry absorber, with bypass valve
Accessories	Cold trap, mass spectrometer, vacuum pump
RoHS 3 compliant, CE certified	✓

Reliable. Compliant. Qualified.



Our well-trained and certified technicians are ready to keep your instrument running smoothly.

Maximum uptime | Warranty program | Short response times | Global service network

