



AVL UltraFine Particle Monitor™

Commit to Clean Air

THE CHALLENGE

Air pollution remains one of today's most critical environmental and public health challenges. With the WHO Air Quality Guidelines and EU Regulation 2024/2881, authorities call for expanded and more reliable monitoring of ultrafine particles to better safeguard human health.

Ultrafine particles, typically below 100 nanometers, can penetrate deep into the respiratory system. Despite their significant impact on human health, they remain largely invisible, highly reactive and strongly influenced by changing ambient conditions.

Accurate ultrafine particle assessment requires more than particle counting. Biological material, coarse particles, humidity shifts and volatile compounds can significantly distort measurement results. Without standardized sampling, controlled conditioning and proper exhaust handling, data becomes inconsistent, non-comparable and unsuitable for use in air quality monitoring networks.

THE AVL SOLUTION

AVL addresses these challenges with a fully integrated ultrafine particle monitoring portfolio that ensures data quality across the entire measurement chain.

The UltraFine Particle Monitor delivers continuous, highly precise number concentration measurements based on AVL's proven condensation particle counting technology, ensuring traceability and stability even under changing ambient conditions. To achieve standardized and regulation-compliant sampling, the AVL UFP Sampling System conditions ambient air according to EN 16976 by removing coarse particles, limiting size to PM2.5 and reducing humidity. Downstream, the AVL Butanol Remover converts exhaust into clean air, eliminating butanol vapors to ensure safe operation and prevent interference with co-located instrumentation.

Together, these modular components create a robust, future-proof monitoring solution that provides reliable, comparable ultrafine particle data for air quality networks and regulatory agencies.



AVL UFP Sampling System

STANDARDIZED AND COMPLIANT AMBIENT AIR SAMPLING

The AVL Sampling System enables representative ambient air sampling in compliance with EN 16976. It ensures precise air quality monitoring despite challenges such as fluctuating humidity, changing weather conditions, and potential diffusion losses.

Key Facts

- EN 16976 compliant
- PM10 sampling head
- PM2.5 cyclonic separator
- Nafion® dryer for RH < 40%
- Modular, flexible installation

AVL UltraFine Particle Monitor

NEW BENCHMARK IN AIR QUALITY MONITORING

The AVL UltraFine Particle Monitor provides continuous ultrafine particle measurements using proven condensation particle counting (CPC) technology. Designed for long-term ambient air monitoring, it delivers stable and precise data.

Key Facts

- EN 16976 compliant
- ACTRIS compatible
- 0 ... 100,000 #/cm³
- $d = 10 \pm 1$ nm
- Automatic reboot
- Drift detection
- Internal data storage
- Easy integration

AVL Butanol Remover

SAFE EXHAUST HANDLING AND INTERFERENCE-FREE OPERATION

The AVL Butanol Remover eliminates butanol vapor from CPC, ensuring safe, odor-free operation. It prevents interference with VOC (volatile organic compounds) measurements, making it essential for multi-pollutant monitoring stations.

Key Facts

- Removal efficiency: >99.9%
- Heated catalytic conversion
- No consumables
- Automatic temperature control
- Compatible with all commercial CPCs

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