

EXPERT NOTE

PARTICLE
COUNTING IN
A CLEANROOM

The importance of monitoring in particle counting with an EMS

Counting airborne particles is a central element in cleanroom management. In the most critical environments, where **air quality** directly determines the safety of products and processes, an **environmental monitoring system (EMS)** can continuously monitor the level of particulate cleanliness to ensure compliance with standards and improve the traceability of events.

The use of an EMS like IVTracer enables **compliance with the requirements of the various ISO classes** (from ISO 1 to ISO 9) in terms of particle monitoring, whether under working conditions or non-production conditions.

For **ISO 5 classes**, where cleanliness levels are the strictest, IVTracer provides continuous monitoring, in line with pharmaceutical industry best practice.

By automating particle counting and centralising data, an EMS **decreases the workload associated** with manual checks and **reduces the risk of human error**. This translates into time savings and better resource management, while maintaining a higher level of control.

Why count particles in a cleanroom?

The quantity and size of particles in the air of a cleanroom determine its cleanliness class according to **ISO 14644**. Strict control of these particles is essential to avoid contamination of products or processes, particularly in sensitive industries such as semiconductor manufacturing, biotechnology and pharmaceuticals.

ADVANTAGES OF AN EMS FOR MANAGING
PARTICLE COUNTING

Particle monitoring by EMS enables **continuous, automatic monitoring**. Thanks to particle sensors connected in real time, IVTracer makes it possible to monitor particle concentrations continuously, not just during spot checks. This ensures constant compliance with the thresholds set for each room class.

If particle thresholds are exceeded, the EMS immediately triggers alarms to alert operators, enabling **rapid and accurate intervention** before the situation deteriorates further. Finally, IVTracer ensures data traceability by recording all counting data, making it easier to carry out audits and track anomalies. Each event is dated and documented, enabling in-depth analysis of potential sources of contamination.

