Analytical blind spots and contamination risks in upstream bioprocessing

Are your cell cultures truly under control between measurements?

In cell culture processes, the most costly deviations often occur between measurements. This questionnaire helps you evaluate, in just five minutes, your analytical blind spots, your exposure to sampling-related contamination risk, and your readiness for real-time monitoring.

Checklist	Yes	No
Between two manual samples, do you know how your culture is evolving?	☐	☐
Are your critical culture parameters (e.g., glucose, lactate, cell viability) monitored in real-time (i.e., not only through periodic sampling at defined intervals)?	☐	☐
Have you ever identified a metabolic shift only after it had already occurred between scheduled measurements?	☐	☐
Does every manual sample taken from your bioreactor require opening the system, creating a contamination risk?	☐	☐
Have you ever lost a run due to contamination originating from sampling or other intervention on the bioreactor?	☐	☐
Are you able to detect a metabolic shift (such as a change in carbon source utilization or lactate accumulation) during a run?	☐	☐
For your high-value products (monoclonal antibodies, insulin, etc.), does each sample consume product that you would prefer to preserve?	☐	☐
Is the analytical model you use during process development directly transferable to production-scale bioreactors?	☐	☐
Can your team intervene during a run (feeding adjustments, process modifications) based on real-time analytical data?	☐	☐
Have you already assessed the feasibility of inline Raman spectroscopy monitoring for your culture processes?	☐	☐
Can you identify specific opportunities where real-time, inline Raman measurements could improve your bioreactor productivity or feed strategy?	☐	☐

How to interpret your score

8–10 Yes answers – Your analytical practices are already highly advanced. Let's discuss how inline Raman spectroscopy can further strengthen monitoring of your most critical processes.

5–7 Yes answers – Analytical blind spots remain within your process. A 30-minute discussion could help identify which parameters or process stages would benefit most from real-time monitoring.

0–4 Yes answers – Your current monitoring approach leaves significant periods without process visibility. These are the applications that typically benefit most from continuous measurement technologies.

Discuss your analytical blind spots with an Endress+Hauser expert.

Contact us today

Endress+Hauser

People for Process Automation

PU01648C/66/EN/01.26