

Micro-smart robotics for reaction monitoring.



Reaction monitoring is critical for both R&D and production. It allows to achieve a **better understanding** of the chemical processes that are involved. This in turn opens the way to reaction optimization resulting in a more cost-efficient production and successful process upscaling, without sacrificing final (pharmaceutical) product quality.

Knowing what is happening in real time will indeed not only increase product yield and purity, it will also reduce the formation of potentially toxic byproducts and lower the number of inefficient or unpredictable side reactions. A safer, faster and more profitable operation is the result.



Whether conventional chemical reactions are monitored or more biotech-focused applications need to be sampled, such as fermentations or enzyme kinetic studies, **smart automation** is key to assure a correct and timely follow-up.

Switching to a robotic platform eliminates human errors in timing and sampling volumes. It relieves lab technicians from the tedious task of taking samples at different time intervals and increases accuracy and repeatability. Parallel sampling and batch size

optimization are available for high throughput systems (e.g. flow reactors). It allows 24/7 sampling and frees up your valued technical staff and researchers for other, more rewarding tasks. Add miniaturization and cost savings to this mix and using smart robotics is clearly the way to go for reaction monitoring.

SampleQ designed a system that can be used offline, with temperature-controlled storage of large numbers of samples and compensation of the sampling volume that was removed, or you can go **online** with systems directly **coupled to fast analytical techniques** such as LC, GC, NMR, UV-Vis and direct-MS. Often the online approach requires some sample prep, going from a simple standard addition to more elaborate sample handling such as filtration, centrifugation, particle/precipitation/cloudiness detection, protein precipitation, liquid-liquid-extraction, μ SPE, evaporation, etc... These options are available on a modular basis, ensuring maximal flexibility and future readiness of this monitoring platform.