



Faster Pharmaceuticals: Continuous Manufacturing

The implementation of sustainable and efficient processes is also increasing in the manufacture of pharmaceutical products. This includes, for example, the continuous manufacturing (CM) of drugs in fixed dosage form. The advantages of modern technology processes lie in the potential for rapid development, much easier technical transfer, and much more flexible and efficient commercial manufacturing with continued strict process controls. Early adopters have recognized the potential in CM and are in the process of optimizing and developing the equipment and systems necessary and used for this purpose. Nevertheless, they are encountering some challenges in widespread adoption within the industry, so it is important that cooperation between industry partners, regulators, academia, as well as stakeholders works to drive innovation.

Back in 2014, a \$200 million manufacturing facility was built in Singapore that included initial continuous production criteria. The following year, the first drug manufactured under a CFM process was approved by the FDA. Today, mRNA vaccines, such as those produced by BioNTech-Pfizer, are also manufactured using continuous flow processes. The pandemic has been a major contributor to the advancement of this manufacturing process.

Equipment and instrument suppliers are developing novel methods for measuring Critical Quality Attributes. One possibility in the context of continuous manufacturing the development of specialized equipment for in-line tablet inspection, which ensures that the contents of each tablet are measured at rates of up to 120,000 tablets per hour and rejects tablets that do not meet specified standards. Using a spatially resolved multi-point near-infrared spectroscopy (NIR-SRS) probe, it is possible to make a prediction of the uniformity of the contents in each tablet. The NIR-SRS is capable of high-speed measurements in the production environment. In addition, a patented three-dimensional microwave resonance sensor measures individual tablet mass. An embedded, automated 4-P tablet tester uses conventional sampling to measure the weight, thickness, hardness and diameter of tablet samples within production lines, simultaneously calibrating the online weight measurement. The real-time data obtained can then be used to control a continuous mixer or tablet press, among other things.

INNOVATIVE TECHNOLOGICAL PROCESSES

- ◇ **Company:**
Pharma Technology Inc
- ◇ **Technology:**
Continuous Flow
Technology
- ◇ **Field of application:**
drug production
- ◇ **Advantages:**
Real-time data
measurement

Efficient & sustainable
processes

Flexible manufacturing

Easy technical transfer

Integrated process
control
- ◇ **Website:**
<https://pharmatec.be/>

In this regard, Pharma Technology Inc. is conducting experiments with Novartis to demonstrate the power of the inspection strategy as a step toward real-time release. The adoption of advanced manufacturing technologies can gain momentum with corporate and government support, enabling companies to deliver medicines where and when they are needed

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