

# QUESTION & ANSWER



Featuring: Michael Becker,  
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**Pfizer is one of the world's biggest pharmaceutical companies, and is expanding like never before. What is the company's key to success?**

Medical advances are important to each and every one of us, and have a real impact on society. And that's why our business model is centered around research. But we're also leading the way when it comes to implementing innovative technologies. At our production site in Freiburg, we're currently investing around 50 million euros on setting up continuous production and installing a PCMM production facility. Freiburg is Pfizer's largest global packing plant for solid dosage forms, and the site supplies medication to more than 150 countries. By expanding production facilities at Freiburg, we can increase the annual production volume of tablets and capsules from 6.5 billion to around 10 billion.

**What are the benefits of continuous production?**

Unlike batch production, which is the norm in our industry, the individual production steps are carried out continuously, without any interruptions – from the delivery of the raw materials to the finished product. Continuous production is becoming increasingly popular for large-scale production. It increases productivity as it requires significantly less downtime than batch production, where the machinery needs to be cleaned in between batches, for example. Continuous production saves time, space and energy, and reduces possible sources of error.

**Continuous production is the norm in the chemicals industry, but what are the challenges when using it for manufacturing pharmaceuticals?**

When manufacturing pharmaceuticals, we need to be sure that each tablet con-

tains exactly the same amount of active ingredient. So the biggest challenge when introducing continuous production was to develop the necessary process analysis and approval procedures. During the production process, the infrared spectrum of 20 capsules is evaluated. This is a highly complex process that is carried out by a computer program. The approval process takes just 20 seconds, making lengthy laboratory tests a thing of the past.

**Everyone is talking about digitization and Industry 4.0. Apart from quality assurance, what other opportunities does this bring?**

When we introduced continuous production, we set up a smart production environment that's in line with Industry 4.0 standards: the material flow was specially adapted for continuous production, while processes for inspecting goods received, weighing, metering, and handling and cleaning containers are now all fully automated.

**Sustainable production has been a hot topic for many years. How does continuous production contribute to this?**

Continuous production is more environmentally friendly as it optimizes the raw material and active ingredient value stream. In Freiburg, we've reduced our carbon footprint by 33 percent by switching from delivering our goods in small barrels weighing 30 kilograms to big bags weighing 880 kilos, and by transporting goods by sea instead of by air. We're also planning to halve the number of trucks needed to deliver our materials and raw ingredients. At the same time, we'll reduce the number of wooden pallets used by 85 percent and we won't need as many tests and samples, which will save both time



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and materials. And because continuous production takes up less space, we don't need as much ventilation capacity, which saves energy.

**How will the PCMM production facility that's currently under construction help you to respond to patients' needs better and faster than ever before?**

As customized precision medicine becomes more widespread, pharmaceutical companies increasingly need to be able to produce a wide range of medication quickly and in smaller quantities. So, as well as continuous production for large quantities,

we also need continuous processes for manufacturing small and medium-sized batches.

That's why Pfizer has teamed up with GEA and G-CON Manufacturing to develop the PCMM (Portable, Continuous, Miniature and Modular) process. This process combines GEA's ConsiGMA™ technology and G-CON's modular POD system, a pre-fabricated, transportable and fully automated cleanroom. The ConsiGma 25 is a relatively small transportable processing unit used for granulating and mixing solid dosage forms during the production process. It also comes

with integrated process analysis technologies. The unit can be used for mixing and pressing powder into tablets, as well as wet granulation, drying and grinding. A PCMM facility is just as sophisticated as a standard one, but is significantly smaller and can be built and installed in under a year.

Not only is the PCMM system flexible, above all it's extremely fast: raw materials in powder form are transformed into finished tablets within minutes, compared to days or even weeks using non-continuous processes. This enables us to develop and make new drugs available to patients more quickly.