How additive manufactured parts enable to optimize chemical processes

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As a driver of innovation in the chemical industry, BASF does not only rely on conventional processes for manufacturing equipment, valves and control components. BASF also deploys the latest technologies, benefiting from their advantages for the complex applications in the chemical process industry. This includes additive manufacturing as a new technology to produce parts being used in research applications and production plants. The focus is to use the new freedom of design to facilitate a more effective and efficient way of producing chemicals. The BASF division Global Engineering Services built an Additive Manufacturing Center and set up a team who has in the past years been fabricating components with a strong focus on metal alloys. Currently the material focus is on stainless steel and corrosive-resistant nickel-based alloys.

In the chemical industry, pressure equipment poses particularly high technical requirements in terms of component integrity, safety and certification. Therefore, certification is crucial for additive manufacturing to become an accepted manufacturing technology for pressure equipment. At BASF, the Technical Inspection in their role as Notified Body (user inspectorate) certifies additively manufactured parts as a pressure equipment. This equipment conforms to the European Pressure Equipment Directive (2014/68/EU).

In this talk, the presenter will give an overview about the established Additive Manufacturing Center and the range of available material and their qualification approaches. Moreover, various parts and use cases will be presented to demonstrate how the performance of complex applications was increased or chemical processes optimized due to additive manufacturing.