

**Clariant Chemistry Day Basel 2018**

Poster abstract

Shaping the Future of Catalysis

**OPTIMIZATION OF THE GEOMETRIC SHAPE OF CATALYSTS VIA 3D PRINTING****Markus Tonigold**, Global Technology Scout, Business Unit Catalysts, Clariant

One of the key parameters determining catalyst performance is the geometrical shape of the individual catalyst bodies. Even minor changes in catalyst geometry can induce considerable changes on the resulting performance in an industrial reactor. That often unexpectedly: established textbook knowledge only provides shallow understanding upon the impact of the catalyst shape – because the structure of the packed catalyst bed and the resultant fluid dynamics around the particles are not considered well. Then again, as of today catalysts have quite simple geometries, owing to the limitations of state-of-the-art manufacturing techniques: they are majorly shaped as cylinders, tablets or spheres. Which performance could be achieved when we would be able to extend our catalyst geometries beyond the limitations of established manufacturing technologies (such as extrusion, tableting and pelletizing)? To answer this question, we explore catalysts 3D printing as possibility to achieve complex geometries on various length scales.