Data set title:
Supplementary material to publication with title: SMART-Reactors: tailoring gas holdup distribution by additively manufactured lattice structures

DOI of data set: https://doi.org/10.15480/882.1498
Handle of data set: https://hdl.handle.net/11420/55047

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Context:
The study deals with the possibility of influencing the local gas holdup and bubble size distribution in a gas-liquid process using additively manufactured lattice structures (AMLS). The used measuring technique to study bubble size, velocity, and the local gas holdup is a photo-optical needle probe. By using AMLS, a significant radial homogenization of the local gas holdup and the mean bubble size is achieved. Furthermore, it can be demonstrated that the bubble size can be tailored by the geometry of the inserted structure. It is illustrated that the mean bubble velocities are lowered within the lattice resulting in a higher residence time of the dispersed phase with an impact on the mass transfer performance within the AMLS.
The .stl files can be used to produce the AMLS.

Used Software:
The data was created with Autodesk Inventor 2020

Contents of data set:

- 20191101_SmartReactors_GasHoldupDistribution_PA12_POCS-Cubic-6mm-86mm x 50mm-Wall2mm_MIM.stl: File format for describing the surface of the 3D object, a POCS with a cubic 6mm unit cell, which is rotated on the tip.

- 20191101_SmartReactors_GasHoldupDistribution_PA12_POCS-CubicOnTip-6mm-86mm x 50mm-Wall2mm_MIM.stl: File format for describing the surface of the 3D object, a POCS with a cubic 6mm unit cell.

- ReadMe.pdf: This readme file

Lizense: