



V. Symposium of Young Researchers on Pharmaceutical Technology, Biotechnology and Regulatory Science

January 18-20 2023 - Szeged, Hungary

OP-27

DOI: [10.14232/syrptbrs.2023.49](https://doi.org/10.14232/syrptbrs.2023.49)

Determination of design space for direct pelletization using ProCepT granulator

Azza A.K. Mahmoud, Géza Regdon Jr., Katalin Kristó

Institute of Pharmaceutical Technology and Regulatory Affairs, University of Szeged, Szeged, Hungary



The high shear granulator is one of most common devices used as an alternative pelletization technique for extrusion spheronization to produce pellets with good flowability, compressibility and bulk density. It is also a rapid process with minimum cost in one step [1-3].

This study aimed to determine the process design space for pellet preparation in a single-step process by using a ProCepT granulator. Experiments were performed for formulations that contained microcrystalline cellulose, mannitol and water as granulating liquid according to many different designs of experiment (DOE) which were full factorial design and central composite design to study the effects of five process parameters. The process resulted in pellets with good yield within a narrow size range, with the required aspect ratio, acceptable hardness and friability. The process design space process was estimated by using the combination of the best process parameters, where the pellet quality parameters were within acceptable values.

References

1. Vertommen, J., et al., Eur. J. Pharm. Biopharm. 40, 32-35 (1994)
2. Kristó, K., et al., Eur. J. Pharm. Sci. 95, 62-71 (2016)
3. Ibrahim, H-E.Y.Y., et al., J. Drug Deliv. Sci. Technol. 66, 102714 (2021)