

New study: BENEО's galenIQ™ proves suitable for powder feeding in continuous manufacturing

Mannheim (Germany), March 2023 – A recently published comparative scientific study demonstrates that BENEО's agglomerated pharmaceutical excipient galenIQ™ is suitable for continuous manufacturing of tablets. The results show that compared to the reference polyol mannitol, galenIQ™ 721 exhibits a lower electrostatic charging propensity, as well as a significantly lower adhesion tendency to stainless steel surfaces. Moreover, the excipient is highly stable against segregation, thus further contributing to its excellent feeding performance.

In the study¹, the authors compared the feeding behaviour and process-induced tribo-charging (electrostatic charging) of isomalt and mannitol powders under process conditions with different magnitudes of shear and compression. During the trials, different feeding performance indicators, such as mass flow range and variability, end fill level and powder adhesion to the feeder surfaces, were selected for the benchmarking purpose. The process-induced tribo-charging was measured, within the same feeding experiment, using a Faraday cup. Both materials were comprehensively characterized for relevant powder properties.

The results show that galenIQ™ 721 exhibits a lower tribo-charging propensity than the reference polyol, as well as a significantly lower adhesion tendency to stainless steel surfaces. Feeding performance of pure galenIQ™ 721 was found to be as effective as the feeding performance of spray-dried mannitol, with even less tendency to adhere to screw outlet and acquire charge during feeding.

¹ Beretta, M., Kruisz, J., Hörmann-Kincses, T.R. et al. Assessment of Tribo-charging and Continuous Feeding Performance of Direct Compression Grades of Isomalt and Mannitol Powders. *AAPS PharmSciTech* 24, 91 (2023). <https://doi.org/10.1208/s12249-023-02552-5>

Future of oral solid dosage form

Continuous manufacturing, as opposed to traditional batch manufacturing, is an integrated process where the input materials are continuously fed into and transformed. The processed output materials are continuously removed from the system.² This is why high feeding performance and consistent flow of materials are crucial for continuous manufacturing processes.

Dr. Maj-Britt Cepok, Head of Business Development Pharma at BENEEO, comments: “When it comes to the production of tablets, continuous manufacturing tableting is one of the most popular trends at the moment and could become the future standard for production of oral solid dosage forms – and with good reason. It allows manufacturers to make cost savings and implement less complex production processes. To make the most of this potential, manufacturers need materials that are suitable for this type of production. That’s why the results of the recent comparative study are good news for pharmaceutical manufacturers engaged in powder feeding: agglomerated types of BENEEO’s pharmaceutical excipient galenIQ™ offer the right powder properties for excellent feeding performance, which is key to facilitate continuous manufacturing.”

Unique properties for direct compression

galenIQ™ is the pharmaceutical grade of BENEEO’s Isomalt that is derived from beet sugar. The agglomerated type galenIQ™ 721 has a unique morphology – for example, a spherical shape and large, porous surface area. Together with its unique particle size distribution, the excipient is specifically designed for direct compression. Its low adhesion tendency and resistance to segregation ensure high blending homogeneity and good tabletability, offering benefits for continuous manufacturing too, where materials need to be processed over a long period of time.

² FDA, Modernizing the Way Drugs Are Made: A Transition to Continuous Manufacturing:
<https://www.fda.gov/drugs/news-events-human-drugs/modernizing-way-drugs-are-made-transition-continuous-manufacturing>

About galenIQ™

BENEO is part of the Südzucker Group and a member of the International Pharmaceutical Excipients Council (IPEC). The company produces galenIQ™ (Isomalt Ph. Eur., BP, USP-NF, JP), a multifunctional range of water-soluble filler-binders, according to cGMP conditions for pharmaceutical excipients.

galenIQ™ is available in a wide variety of median particle sizes, morphologies and solubilities, and is therefore readily used in solid and liquid dosage forms such as tablets, sachets, effervescent, lozenges and syrups. It is physically and chemically stable, non-hygroscopic and enhances the palatability of the final form.

For more information, please visit www.galenIQ.com or send an e-mail to galenIQ@beneo.com.

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