

Press Release

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Tablet development with digital tools

Romaco Kilian tableting workshop jointly with BASF

Around 50 people recently attended the two-day tableting workshop organized by Romaco Kilian in cooperation with BASF. The aim of the event was to develop a pediatric formulation, from prototype to production scale. Live demonstrations from the Kilian laboratory in Cologne were complemented by scientific presentations on the subject of formulation and tableting.

Romaco Kilian recently got together with BASF to hold a two-day workshop on tablet development with digital tools. Around 50 people, mainly from the pharmaceutical industry, accepted the invitation to Cologne. They were treated there to an advanced course all about galenics and tableting and specifically targeted at employees in R&D departments or in specialized laboratories. The aim was to design an ibuprofen 100 mg orodispersible tablet for pediatric use in just two days. This involved working through all of the development steps from characterization of the API and selection of the ingredients to tableting the prototype and upscaling to production.

Digital workshop concept

As well as witnessing practical research work, the participants also listened to a series of scientific presentations, among other things on software-assisted formulation development, excipient selection and powder analysis plus orodispersible tablet properties. Parallel to the theoretical part, a live link allowed attendees to watch the compression tests taking place in KiTech, Romaco Kilian's tableting laboratory. The subsequent analysis of the measurement data with ZoomLab™, BASF's virtual pharmaceutical assistant, was likewise broadcast live.

"The novel workshop concept was very well received by our audience," reported Dr. Carola Hanl, KiTech Laboratory Manager at Romaco Kilian. "Thanks to the

innovative digital tools for both galenics and tableting, our guests were enabled to participate directly in our research project, where we developed a tablet all the way from the formulation through the prototype to production scale, all in full view. We demonstrated the process using the example of a pediatric ibuprofen orodispersible tablet, which was specially tailored to the requirements of the age group in terms of dosage amount and form.”

Formulation and tableting are child’s play

BASF Pharma Solutions supports research-based pharmaceutical manufacturers in the development of their products with ZoomLab™, a scientifically proven digital tool that is designed to instantly predict formulations and overcome other formulation challenges. The formulation can then be tested and the first product samples produced and evaluated. New formulations can thus be completed in a very short time.

The data fed to ZoomLab™ during the workshop at Kilian was collected live from the compression tests using Romaco Kilian’s KTP 1X laboratory press. The formulation was successively revised and optimized on the basis of these measurement results. The single-stroke press is tasked with developing the ideal compression force/hardness profile for the desired tablet design, taking account of the different ingredients. In this case, a biplane ibuprofen orodispersible tablet in 11.28 mm format with a 9 mm flat facet was the goal. Orange and vanilla flavors were added to mask the taste of the children’s medicine. The challenge here was to come up with an orodispersible tablet that was as porous as possible, so that it dissolved quickly in water for ingestion. At the same time, it had to be compressed sufficiently hard to ensure efficient handling and packaging.

Smart tableting

Thanks to its highly automated compression studies, the KTP 1X laboratory press only needs a few test series to deliver meaningful results when characterizing a formulation. This versatile R&D press is moreover capable of replicating any standard rotary press, making it significantly easier to conduct scale-up trials. The positive outcome of the production-scale tableting trials on the KTP 720X double-sided rotary press, which wound up the joint Romaco Kilian and BASF workshop in Cologne at the end of November 2023, was only logical.

“The response to our workshop was overwhelming,” emphasized Jens Carstens, Managing Director of Romaco Kilian. “In collaboration with BASF, we succeeded

in designing a blueprint for pharmaceutical producers' day-to-day development work and underpinned this model with well-founded scientific data. I'd like to express my sincere thanks to the speakers from BASF and Kilian as well as to everyone who worked so hard behind the scenes – not forgetting our guests, who enriched the event tremendously with their expert knowledge and wealth of experience.”

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Romaco Group

Romaco is a leading international supplier of processing and packaging equipment specializing in engineering technologies for pharmaceutical products. The Group provides individual machines, lines and turnkey solutions for manufacturing, filling and packing powders, granulates, pellets, tablets, capsules, syringes, liquids and medical devices. The company also serves the food and chemical industries. Through its various technologies, Romaco is committed to sustainable production and to systematically reducing CO₂ emissions.

The Romaco Group has its headquarters in Karlsruhe (Germany) and is part of the Truking Group, a globally operating high-tech enterprise based in Changsha (China). Truking's core competency is handling and filling pharmaceutical liquids.

Romaco operates from five European business sites, with a broad portfolio comprised of seven established product brands. Noack and Siebler (Karlsruhe, Germany) supply blister, heat-sealing and rigid tube filling machines. Macofar (Bologna, Italy) markets technologies for filling sterile and non-sterile powders and liquids. Promatic (also Bologna, Italy) specializes in cartoners, track & trace systems and case packers. Kilian (Cologne, Germany) is a leading manufacturer of tablet presses. Innojet (Steinen, Germany) is in the business of granulating and coating fine solid particles. Tecpharm (Barcelona, Spain) offers tablet coating technologies.

More than 850 highly skilled and committed Romaco employees are dedicated to the development of future product technologies and to the continuous implementation of internal improvement processes. The Romaco Group's multi-brand system solutions are sold worldwide through nine Sales & Service Centers

and a dense network of local agent organizations. Over 12,000 installations delivered by Romaco are currently in use in more than 180 different countries.

The following pictures are enclosed with the press release:

1. Dr. Carola Hanl, KiTech Laboratory Manager at Romaco Kilian, demonstrates the huge breadth of applications for Romaco Kilian's KTP 1X laboratory press.

Tableting-Workshop_Kilian-BASF_Hanl_5542.jpg



2. Specialists from BASF and Kilian get together to analyze the results of the compression tests in the lab.

Tableting-Workshop_Kilian-BASF_Laboratory_5610.jpg



3. An ibuprofen orodispersible tablet for pediatric applications was developed at the workshop.

Tableting-Workshop_Kilian-BASF_Ibuprofen-tablets_5806.jpg



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