

New Insights in Tablet Formation

APV Expert Workshop in Dortmund

Tablets are the most relevant dosage forms in the drug therapy of many diseases. Although they are well accepted by the patients and have been established for more than 120 years, the process of tablet formation is not entirely understood so far. New, innovative active pharmaceutical ingredients often require special tableting formulations in order to provide the desired pharmaceutical effect.

At the 26th and 27th of April, more than 130 researchers from ten different countries met at the Technical University of Dortmund in order to discuss recent trends in tableting technology. The workshop was organized by the non-profit scientific society 'International Association for Pharmaceutical Technology' (APV) and the Faculty of Bio- and Chemical Engineering of TU Dortmund (Prof. Markus Thommes). The workshop was structured in lectures, discussions, an exhibition as well as lab demonstrations.

The keynote lectures were given by outstanding researchers in the field of tableting like Prof. Göran Alderborn (Uppsala, Sweden), Prof. Annette Bauer-Brandl (Odense, Denmark) and Prof. Karl Wagner (Bonn, Germany), who focused on recent developments from the scientific point of view. Other presentations were given by industry experts from Hoffmann-La Roche and Mundipharma, focusing on applied research like mini tablets, quality assurance, containment strategies and development concepts. This program initiated an enthusiastic podium debate as well as more personal discussions during the breaks and the course dinner in the "Hövels Brewery".

The highlight of this workshop was the presentations of eight operating tablet presses from leading suppliers: five rotary presses (Bosch, Fette, IMA, Kilian, Korsch) to evaluate material properties and three single punch presses (Gamlen, Medelpharm, Roeltgen) or to simulate compaction properties of rotary presses. The organizers benchmarked these machines during the course by running up to 300,000 tablets



per hour, using three challenging formulations and process conditions. The participants were divided into small groups, so they had the chance to see all machines running. Important tablet properties were evaluated immediately and the data was presented at the end of the course by Prof. Peter Kleinebudde (Düsseldorf, Germany). The results were discussed extensively with the machine suppliers. Furthermore, suppliers of excipients and tablet characterization equipment gave short presentations about their products and recent developments, which were also shown in an exhibition.



Even if tablets are rather common and inconspicuous in the drug therapy, there has been a tremendous progress made in the last 10 years. The innovations in the field of tableting related to equipment design, characterization, material science and process understanding make us ready for the challenges of new drug substances and their tablet formulation in the future. The format of the workshop and the huge number of participants made it an overwhelming success, causing the participants to ask for a repetition of such a workshop within a few years.