



Innovative technology helps manufacturing of highly bioavailable drugs

- "Hot Melt Extrusion" technology meets one of the greatest challenges in the pharmaceutical industry
- Two-day seminar and practical demonstration at Republic Polytechnic (June 9-10) by distinguished pharmaceutical professionals and academics

Singapore – June 8, 2010 – BASF and ThermoFisher have introduced an innovative technology to manufacture drugs with high bioavailability. This approach offers great potential for pharmaceutical companies to overcome the problem of extremely low solubility of active ingredients that very often is a major roadblock in the development of new drugs.

Hot Melt Extrusion technology is a combination of melting and mechanical processing with numerous advantages such as dust reduction, continuous reproducibility, high throughput and in-process monitoring. It improves the solubility of hardly soluble drugs to enhance the bioavailability, and also can be used to prepare sustained release dosage forms and other formulations.

“Currently, many new active pharmaceutical ingredients have been identified to treat medical conditions but most are almost insoluble, and hence have poor bioavailability with no reliable therapeutic efficacy,” said Dr. Ralf Fink, Senior Manager Asia Pacific, BASF Pharma Ingredients & Services. “Drugs produced by Hot Melt Extrusion can be more efficiently absorbed into the bloodstream – thus really 'work' in the body.”

Two-day seminar and practical demonstration at Republic Polytechnic

Collaborating with Republic Polytechnic in Singapore, BASF and ThermoFisher will jointly organize a two-day Hot Melt Extrusion Technology Seminar. The seminar will include lectures and workshops and is held at the E5 Building at the Republic Polytechnic. Experienced experts in research and development, formulations and manufacturing are invited.



“The seminar is an excellent opportunity for us to help educate our customers about new techniques in Pharma drug development and rheological measurement,” said Mr. Chris Knowles, Product Line Director for Pharma of Thermo Fisher Scientific’s material characterization business. “Customers can learn about Hot Melt Extrusion from experts and then see practical demonstrations of the processes. With more commercialized solutions in the market, the excitement for Hot Melt Extrusion is growing rapidly. We want to help our customers explore these possibilities and overcome their unique challenges.”

“Republic Polytechnic is delighted to partner with BASF and ThermoFisher to co-host this seminar to introduce the innovative Hot Melt Extrusion Technology to the pharmaceutical industry. BASF and RP have been partners since 2008 when we set up a joint laboratory in RP, and we look forward to deepen the knowledge of our students and staff with the introduction of the HME technology,” said Dr. Terence Chong, Director, School of Applied Science, Republic Polytechnic.

Many distinguished pharmaceutical professionals and academics – Professor David Worthen from University of Rhode Island and Professor Stephen Hoag from University of Maryland – will make keynote speeches. There will also be demonstrations of the technology from bench top to the final tablets.

How Hot Melt Extrusion Technology works

Hot Melt Extrusion technology is executed via a cGMP compliant Hot Melt Extruder machine by ThermoFisher, incorporating e.g. Soluplus®, an innovative excipient from BASF, which was specifically developed for this technology. Without any aqueous and / or organic solvents during the extrusion process, drying is unnecessary thus minimizing the risk of degradation of the drug due to the shortened process time.



During the Hot Melt Extrusion process, Soluplus dissolves the active ingredients in the formulations to improve their bioavailability and at the same time preserving the efficacy of the chemicals. Commercially available products manufactured via Hot Melt Extrusion processes are stable at room temperature and do not have to be refrigerated as previously required when using other delivery methods. Due to the high bioavailability enabled by this new technology, the drug dosage can be reduced while achieving the same efficacy or effect.

Soluplus® is produced fully in accordance with cGMP guidelines (cGMP stands for current Good Manufacturing Practice) and has passed stringent toxicology and safety tests.

About BASF

BASF is the world's leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics and performance products to agricultural products, fine chemicals and oil and gas. As a reliable partner BASF creates chemistry to help its customers in virtually all industries to be more successful. With its high-value products and intelligent solutions, BASF plays an important role in finding answers to global challenges such as climate protection, energy efficiency, nutrition and mobility. BASF posted sales of more than €50 billion in 2009 and had approximately 105,000 employees as of the end of the year. Further information on BASF is available on the Internet at www.basf.com.

About Thermo Fisher Scientific

Thermo Fisher Scientific Inc. (NYSE: TMO) is the world leader in serving science. Our mission is to enable our customers to make the world healthier, cleaner and safer. With revenues of more than \$10 billion, we have approximately 35,000 employees and serve customers within pharmaceutical and biotech companies, hospitals and clinical diagnostic labs, universities, research institutions and government agencies, as well as in environmental and process control industries. We create value for our key stakeholders through two premier brands, Thermo Scientific and Fisher Scientific, which offer a unique combination of continuous technology development and the most convenient purchasing options. Our products and services help accelerate the pace of scientific discovery, and solve analytical challenges ranging from complex research to routine testing to field applications. Visit www.thermofisher.com.

About Republic Polytechnic

The first educational institution in Singapore to adopt the Problem-Based Learning approach for all its diploma programmes, Republic Polytechnic (RP) has six schools and one centre offering 34 courses in Information and Communications Technology, Engineering, Applied Science, Technology for the Arts, Sports, Health and Leisure, Events and Hospitality, and Culture and Communication. Republic Polytechnic is committed to nurturing innovative, entrepreneurial and cultured professionals in an environment that develops problem-solving skills and a life-long learning attitude. Since its establishment in 2002, the institution has been awarded various international and national accreditations, including ISO9001, ISO14001, OHSAS 18001, TR19, People Developer Standards, Singapore Quality Class and Singapore



Innovation Class, demonstrating an ongoing focus on excellence. For more information, visit <http://www.rp.sg>

Media Contacts:

Adeline Choo (BASF)

Phone: +65-6432 3670

Mobile: +65-9853 9820

Fax: +65-6432 3298

adeline.choo@basf.com

Petra Roth (Thermo Fisher Scientific)

Phone: +49 (0) 721 40 94 169

Fax: +49 (0) 721 40 94 11 169

Petra.roth@thermofisher.com

Mr Pandiyan (Republic Polytechnic)

Mobile: +65-9119 1836

pandiyan@rp.sg

Ms Josephine CH Teo (Republic Polytechnic)

Mobile: +65-9786 8960

josephine_ch_teo@rp.sg