

Contract manufacturing at IPC also in continuous mode

Spray granulation for granules and pellets made directly from liquid raw material

Fluid bed technology is used in various applications especially for agglomeration of powder or for encapsulation of tailor-made products with functional coatings.

The contract manufacturer IPC International Process Center in Dresden, an associated company of the Glatt group, offers such technologies as contract manufacturing service since many years with growing success.

In addition to batch processing IPC has installed continuous production facilities at the beginning of this year. Besides the well known agglomeration and pelletization processes, continuous fluid bed processing allows for spray granulation. With this technology granules or pellets can be made directly from liquid raw material. The products are compact and dust free granules with a mean diameter between 100 µm and 3 mm. Thus spray granulation is an alternative to spray dryers, the conventional process to dry liquids.

The patented design of the processing chamber of the ProCell, a spouted bed unit by Glatt, allows to work with little material in the process, resulting in short residence times. By this means spherical, dust-free and homogeneous pellets can be formed with little thermal stress to the product.



picture 1: product examples, from left to right:
spray granulation enzyme – spray cooling lipid coating – spray granulation beta carotene

The spraying solution is layered on seed particles or powder until the required particle size is reached. The product quality (picture 1) depends on the process parameter as well as on the recipe of the sprayed liquid. After screening off the target fraction as product, all oversized particles are milled and returned to the process together with the undersized fraction. This recycling ensures not only a high yield. Generating seeds in the process means also that no solid raw material is needed and the granules can be made from liquid raw material only.

Customers can use the new technology not only in contract manufacturing but also as an innovative method for the development of new products. After a principal feasibility study in lab scale (ProCell 5) more process parameters are established in pilot scale (ProCell 70) before transferring the process to full production scale (ProCell 250). Depending on the solid content of the spraying solution, the throughput of the ProCell 70 ranges between 30 to 50 kg/h. When spray cooling melts the capacity may be as high as 100 kg/h and may already be sufficient for small production campaigns.

By the end of 2008 the production unit ProCell 250 was commissioned. This unit provides capacities for spray granulation between 150 and 250 kg /h. For agglomeration or coating processes even higher throughputs are feasible.

The production of highly active pellets with narrow grain size distribution is also very interesting for the pharmaceutical industry. API's as well as pharmaceutical recipients may be produced using the ProCell. In order to offer contract manufacturing service also to pharmaceutical customers both units ProCell 70 and ProCell 250 will be fully GMP certified within 2009.