Case Study

Five year trouble free manufacturing for large pharma company

Alkermes, through the merger with Elan Drug Technologies, to become Alkermes plc, has been developing and manufacturing commercial scale solid oral dosage products for over 40 years. This case study demonstrates a large pharmaceutical contract manufacturing engagement in which there has been five years trouble free supply with OTIF (On-Time-In-Full) consistently >95%.

Process and product improvement initiatives were also delivered, which enabled significant capacity and yield improvements. These improvements resulted in significant cost savings for our partner.

Project History
In 2004, we were approached by a large international pharmaceutical company, to supply manufacturing services for a solid oral dosage product. This marked only the second time this large pharmaceutical company sought assistance (pre-launch) from a third party to manufacture a product on its behalf. The Alkermes Athlone Ireland site was chosen as the preferred site to fulfil the expected commercial demands of the product as the launch was being rolled out throughout Europe.

Why the Athlone Ireland plant was chosen?
Alkermes Contract Pharma Services manufacturing plant in Ireland was chosen because the site met our partners dual requirements of experience and expertise in solid oral development and manufacturing. The manufacturing capacity afforded by the Athlone facility together with its excellent compliance record supplying product from an FDA/EMA inspected site provided the large pharmaceutical company with the assurances it required to outsource its manufacturing requirements. The Athlone plant also had well-established credentials in delivering process improvements for partners. 26 products have been manufactured in the Athlone site since the 1970s – the majority of which are solid oral dosage forms.

The Challenge
The immediate challenge was to develop a high-yield, robust process, to manufacture a multi-coated enteric coat product, where other companies had experienced significant problems in aggregation and in functional coat failure. An additional challenge was to deliver a solution quickly as the product had high volume requirements for launch.

Alkermes’ Athlone Site
Located on a 40-acre site, with over 220,000 sq ft of dedicated cGMP grade facilities, this site has a proven manufacturing track-record with many products optimized and manufactured for partners in multiple territories. The facility has an equipped annual capacity of 2 billion solid oral doses. The Athlone site is an FDA/EMA inspected facility.

The Result
A number of significant achievements resulted from our involvement with this project. A robust process development and tech transfer was achieved in significantly less time than our partners best case time estimate for the project.

• The entire process including equipment build and qualification, and process development took less than 10 months
• We moved directly into 24/7 production from validation, immediately achieving a commercial run-rate for this multicoated bead product of >100 batches/annum (up to 340 million doses)
• Process and product improvement initiatives were delivered and/or demonstrated to deliver, with significant capacity and yield improvements achieved
• Combined cycle processing was championed by us and we delivered a capacity increase of 22% – this approach was later implemented in the customers own facilities
• One process improvement resulted in an increased return on active ingredient. This resulted in a 25% increase in active pharmaceutical ingredient (API) yield per batch – a significant cost saving that was passed on to our partner
• Through our reformulation of the product, a significant increase in active loading of the bead of 35.5% was achieved
• Process scaling achieved through use of process development scale Glatt 5 and 30 equipment enabled further optimization and cycle development away from commercial cGMP and cost constraints associated with large scale processes.

The Athlone plant manufactured at full capacity for more than 5 years consistently delivering OTIF in excess of 95% and ranking at or close to the top of our partners league table of suppliers. Over the 5 year period more than 1 billion doses of product were manufactured for our partner.