



Alcon Laboratory

Bringing a sharper focus to world's largest eye care company. Alcons facility in Cork employs 360 people and manufactures the company's leading surgical product, the AcrySof® intraocular lens.



The Need

The initial stages of intraocular lens (IOL) manufacturing have direct impact on the optical performance and quality of the finished lenses. However these characteristics can't be measured until end of line, resulting in wasted effort for rejected lenses. Alcon sought an automated technology that would allow them to identify potential end of line failures right at the start of their manufacturing process.

The Solution

In close consultation with Alcon, the Centre for Advanced Photonics & Process Analysis (CAPPA) carried out R&D for an advanced optical inspection system, which passed all pre-validation testing and was licensed by Alcon in June 2011. The system facilitates early automated prediction of lens quality and the removal of reject lenses earlier in the process.

It achieves significant improvements in manufacture and production line testing and provides valuable new information to Alcon on their products and manufacturing process. Submission for FDA approval, required prior to production, is scheduled for early 2012. Once successfully in place in the Irish facility Alcon plan to transfer the technology to their sites in the US.

Critical Success Factors

The work was co-funded by Alcon and Enterprise Ireland under the Innovation Partnership Programme, which supports industrial collaboration between third level institutions and Irish based companies. The open collaboration between the Process Engineering Group at Alcon and the CAPPA researchers was key to understanding the restrictions and requirements of their process. Alcon engineers and CAPPA researchers spent time at each other's facility during the project, which contributed greatly to the success of the work programme.

Benefits of the Engagement

This was Alcon's first significant process improvement on the IOL manufacturing line to take place outside of the US. It has direct benefits in terms of yield, quality, throughput, resourcing and process knowledge and has raised the profile of the Irish facility within Alcon's corporate structure.

Alcon hired a member of the CAPPA research team on completion of the project, in order to assist in the technology transfer. CAPPA and Alcon are currently negotiating a follow-on process improvement project, which has successfully passed the technical feasibility stage. Alcon also accesses the advanced imaging and spectroscopic facilities in CAPPA on an ongoing basis. This is to support FMEA and yield investigations in their Quality Production Departments.

"A successful relationship has been forged with the group (at CIT), which is now bearing fruit. Alcon recognised the capability of CAPPA to provide value for money expertise in the area of process analysis and optical metrology."

Mr Barry Walsh
Process Engineering Manager, Alcon
Laboratories Ireland Ltd.

"The Alcon partnership has been a springboard for the centre in attracting new partners and projects in the Medical Device sector. Through our collaboration with Alcon, other industrial partners in this sector could immediately see the relevance of CAPPA's photonics research to many of their product or processes."

Dr Eamonn O'Neill
CAPPA Applied Research Manager

