



Pumping of latex agglomerate

Polimeri Europa is one of the major world producers of elastomers at their plants in Hythe and Grangemouth, United Kingdom. Latex represents a particular difficulty because of its adhesion and coagulation properties.

A high cost maintenance regime requiring numerous built up spare pumps, stand-by pumps and regular labour intensive overhauls and cleaning was used to keep process lines running. Pumps were changed as often as every shift during certain product batches.

Polimeri Europa commenced a search for a pump to avoid the latex build-up that seized impellers. In addition they were looking for a robust design with specialised mechanical seals to eject coagulated latex in a controlled manner.

No standard products were identified as being suitable and so Polimeri Europa invited a number of ISO9001 accredited pump suppliers with proven track records to propose how they could resolve the problem.

Bespoke design

Amarinth were selected for their ability and willingness to work with Polimeri Europa on optimising a design which would include special features outside of their standard catalogue.

The design parameters were for a pump that could run for some three weeks before requiring any maintenance.

The base pump chosen was an N-series, which included a removable front suction cover enabling quick access for cleaning.

A scalloped impeller was specifically designed to minimise clogging and an electro-polish was applied to the

backplate and impeller to create low friction surfaces. Finally a special mechanical seal was designed to handle latex coagulate.

Reduced maintenance

The new pumps were delivered on-time and are exceeding design expectations on this very demanding application.

Labour costs are down by 85% and overall costs are down by 83%. These cost savings in both parts and labour has meant that the pumps have paid for themselves in under a year.

Design Improvements

Despite having surpassed the original specification, Polimeri Europa were keen to further develop the design and achieve even better performances.

Ideas were developed and discussed jointly between engineers from Amarith and Polimeri Europa. FEA analysis of proposed changes was undertaken by Amarith, thereby accelerating development.

Polimeri Europa then tested incremental improvements in design for latex duties on-site and found that small modifications to the impeller and backplate dramatically increased performance.

Polimeri Europa now have a trial pump that has *run for six months without the need for any maintenance or cleaning.* As an additional bonus the new pump is also delivering significant energy savings.



Scalloped and electro-polished impeller



Polimeri Europa is a petrochemical company wholly owned and controlled by the Italian energy corporation Eni SpA. Founded in 1926, Polimeri Europa has a turnover of Euros 5.4 billion and employs over 6,500 staff. Using a range of proprietary technologies and state-of-the-art production systems, the company produces basic chemicals, polyethylene, elastomers and styrenics for many of the world's leading brands.

The United Kingdom is home to production plants as well as research and technical service operations. These facilities are located at Hythe and Grangemouth and employ some 250 staff.



"I have been impressed by Amarith's repeated willingness to further develop and improve this product. Working with them and developing innovative ideas has been a very productive and rewarding experience. The cost savings generated for Polimeri Europa have been considerable and have turned one of our most problematic maintenance issues into one of our most reliable."

Andrew Maxwell
Plant Engineer Materials