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Polimeri problem pump now its most reliable

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London - Polimeri Europa, a global supplier of elastomeric materials, has cut its pump maintenance costs by over 80% through the use of a new impeller and pump design that allows latex coagulate to be pumped more reliably and with less stress on equipment.

The adhesion and coagulation characteristics of latex polymers presents a particular challenge for pumping equipment. Polimeri's process lines previously required costly maintenance regimes involving many spare pumps, stand-by pumps and regular labour intensive overhauls and cleaning. Pumps were changed as often as every shift during certain product batches.

With no standard products available in the market to resolve the issues, Polimeri turned to pump manufacturer Amarinth, based in Rendlesham Suffolk, UK, to come up with a customised design for a pump that could run for at least three weeks before requiring any maintenance.

Starting with its own N-series pump, Amarinth designed a scalloped impeller that could minimise clogging of the latex. An electro-polish was then applied to both the impeller and the backplate to create low friction surfaces. The company also designed a removable front suction cover for quick access for cleaning and added a specially adapted mechanical seal to contain the latex coagulate.

According to the equipment maker, the new pumps have met all of Polimeri's requirements. Labour costs, it said, 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.

"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," commented Andrew Maxwell, plant engineer materials at Polimeri.

Indeed, Polimeri has since moved to further develop the design and achieve even better performance. Ideas were jointly developed between engineers from Polimeri and Amarinth amd an FEA analysis found that further small modifications to the impeller and backplate could dramatically increase performance. The elastomers producer now has a pump that has run for six months without the need for any maintenance or cleaning – much longer that the original three week design brief, while the most recent design changes are also delivering significant energy savings.