
WHITE PAPER

XL7 Process viscometer applications (3)

Online viscosity control increases productivity and efficiency, enhances process understanding

In every process there are certain critical, “make or break” parameters which directly determine product quality. Better understanding and control of such parameters bring improvements in efficiency and productivity, reductions in reject rates and greater potential for automation, with all the cost benefits that result.

A key parameter in many processes is viscosity, yet the road to reliable online viscosity measurement has not been easy. The ideal viscometer has to deliver continuous measurement day after day with excellent repeatability but minimal maintenance, sometimes under very harsh conditions. Few instruments can satisfy such tough demands. Those that can — and they do exist — will pay for themselves many times over.

Online viscometers capable of accurate, reliable and trouble-free operation are now available. Many industries around the world have been quick to seize the opportunity they offer to monitor and control viscosity in real time. The benefits are such that no processing engineer can afford to ignore them.

Case Study: Buckman Labs

Buckman Laboratories, Inc., of Memphis, Tennessee, provides advanced chemical treatment technologies and technical support services mainly to the pulp & paper, water treatment, leather, coatings, plastics and wood treatment industries. The product range includes microbicides, dispersants, defoamers, coagulants, flocculants, corrosion and scale inhibitors as well as chemical intermediates.

In their South African facility, Buckman Laboratories was particularly interested in exploiting viscosity for controlling the production of the polymer additives it supplies to the pulp and paper industry. The viscosity of the reaction mixture directly reflects the progress of the polymerisation, making it an ideal parameter for monitoring the process. Production staff therefore used to take samples for manual measurement in the laboratory, but this procedure was laborious and time-consuming. Worse than that, the end-point of the reaction could easily be missed, resulting in wastage and loss of product. Also, as the process temperature could be as high as 85°C, inaccuracies could easily result from cooling of the samples.

Once Buckman Laboratories had learned about online viscometers from a local consultant, the proven reliability and performance of the Hydramation XL7 soon persuaded it to invest. As the production facility is classed as a Hazardous Area,



*The Hydramation XL7 online viscometer
and VP550 readout unit*

the company chose the XL7-150 intrinsically safe device, which carries IEC Ex ia IIC certification. Importantly, the XL7 could easily be used to automate the regulation of the process, eliminating the need for manual sampling.

“We found that the XL7 was easy to install and excellent for the application,” commented Mrs Prithae Ellappen, Process Engineer at Buckman Laboratories. “It is user-friendly and requires minimal maintenance. With automated viscosity measurement we have improved our efficiency and seen a significant reduction in lead times.”

As with any other technology, the decision to purchase and install an online viscometer is a matter of balancing the likely rewards against both the initial outlay and the ongoing costs once the device is installed. However, by investing in a reliable low-maintenance system such as the XL7, there are immediate benefits in terms of improved efficiency, increased productivity and enhanced process understanding, while running costs are virtually zero. At the same time, labour and wastage costs can be significantly reduced. All this means that the payback time is usually measured in months rather than years. In fact, some companies have benefited so dramatically from using online viscometers that their installation has become a closely-guarded industrial secret.

For too long, process viscosity measurement has been poorly served by unreliable instruments that are expensive to maintain. Now that industrially robust systems are available, exploiting the clear benefits of online viscosity control has become a realistic option for every process engineer.
