AJM Consulting MS2 Case Study BLUESTAR Bluestar Fibres Company Limited

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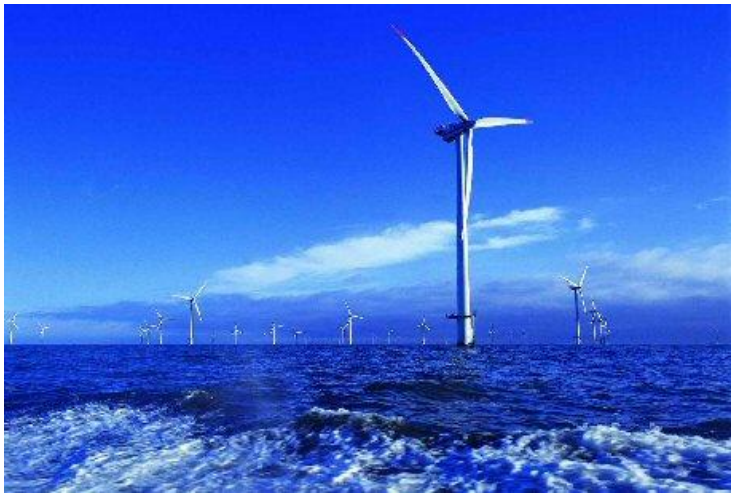
Improving Quality at BlueStar Fibres using MS2 Process Analysis



BluestarFibres Limited is a manufacturer of Acrylic fibres for industrial and speciality end uses based in Grimsby, NE Lincolnshire. The business focus is in two areas: Carbon Fibre Precursor and Speciality Textile Fibres. Carbon Fibre is processed into flame retardant and insulating materials, carbon-carbon composite aircraft brakes as well as other Carbon Fibre applications. It is used in continuous and chopped form to produce low weight, high strength composites for a wide variety of end uses ranging from portable electronic equipment to high performance bicycles and sports equipment to wind turbine blades and oil rig risers. The Speciality Textile product range includes the Amicor family of Anti-bacterial and Anti-fungal fibres, the Outlast range which utilizes Phase Change Material to regulate body temperature and the Super White range of high colour purity textile fibres.

Manufacturing is a continuous process involving several interconnected stages leading to a high degree of complexity and interaction. As with all manufacturing processes there is a need to understand which are the Key Process parameters in order to focus on these for both controlling the process to meet the stringent requirements of Aerospace and Medical end users and also for developing the process to break in to new, more demanding markets.

"Following our introduction to the concept of Data Mining and Multivariate Analysis we were aware of the potential benefits to a process as complex as ours but we were concerned about the suitability for a continuous process. By working closely with AJM, they were able to manipulate data from a large number of databases and produce a Parallel Co-ordinate Visualization with a timescale. Subsequent analysis including Principal Component Analysis has yielded valuable information about Key Process Parameters and has also shown where data that is difficult and expensive to collect is adding little or no value. We are looking forward to continuing to work with AJM to further develop the package and are now considering including Customer Data also."

Neil Barker,
Fibres Worldwide Ltd

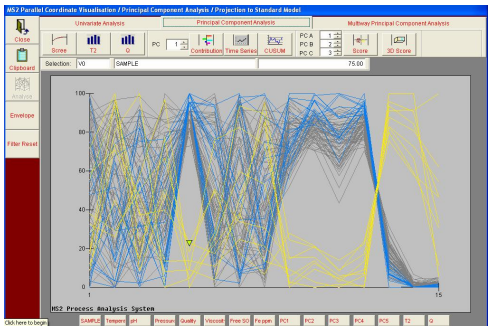
continued overleaf...

The MS2 Process Diagnostics System

MS2 is a sophisticated, integrated system which models the production process, either batch or continuous, to help identify the causes of variability which can affect issues such as quality and yield. A wide range of analysis tools and visualisation methods have been developed to pinpoint critical process influences. The system incorporates powerful techniques such as multivariate principal component analysis, Manhattan significant change detection and parallel co-ordinate visualisation.

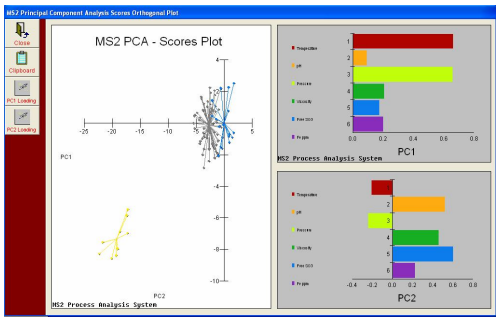
Parallel co-ordinate visualisation

This technique provides a view of relationships between many diverse process variables, for instance quality parameters such as pH and viscosity, process parameters such as maximum pressure and temperature and calculated values such as time to peak exotherm or shift identity.



Principal Component Analysis

The complex multivariate analysis and visualisation tools needed for this powerful technique were developed in conjunction with the world-renowned Centre for Process Analytics and Control Technology (CPACT) at the University of Newcastle. PCA provides a method of reducing the apparent complexity of large data sets to identify the principal causes of variability. It is proven to provide substantial bottom line benefits in major organisations and, through MS2, is now available to all sizes of company.



Ease of Use

The MS2 Process Analysis System was developed by AJM Consulting to bring advanced techniques within the reach of all companies, recognising the need for low ownership cost and limited on-site personnel involvement. Technologies developed for and applied to large organisations are often just too complex and expensive for most process manufacturers and the philosophy behind the MS2 Process Analysis System is to make advanced technologies accessible and affordable with immense potential benefits to competitiveness.

Latest Developments

AJM Consulting was selected to receive European Union funding, to enable it, in conjunction with CPACT, to design and build a unique tool, able to analyse existing data or monitor current production, by integrating to a wide range of process control or data historian systems.

Available at several levels of cost and complexity, and easily upgradeable, MS2 is ideal for all process manufacturers who need better knowledge of their processes to achieve improved production performance and a sustainable future.

Newcastle University

AJM Consulting is working in conjunction with Newcastle University to continue development of the advanced MS2 system

This project is part-funded by the European Union Regional Development Fund

AJM Consulting is a member of:

- *Institute of Measurement and Control*
- *Humber Chemical Focus*
- *Yorkshire Chemical Focus*
- *North East Process Industry Cluster*
- *Chemicals NorthWest*
- *CPACT*

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