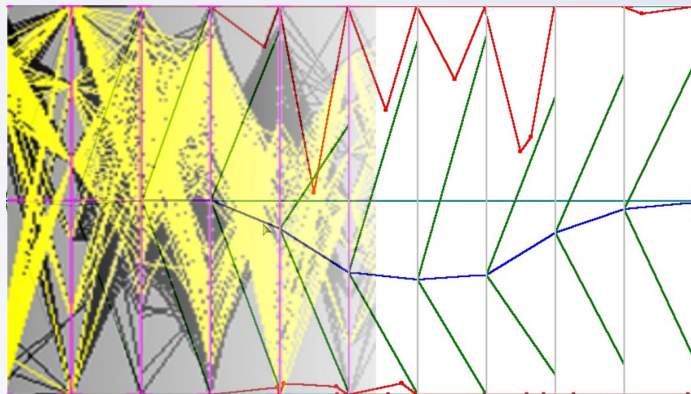


THE COMPANY



Founded in 1994, UK based Process Plant Computing Limited (PPCL) is rapidly expanding worldwide leading the way in Process Control, Quality Control and Alarm Management. The technology on offer employs n-dimensional geometry to allow you to solve previously intractable problems in Process Improvement, Process Operations, Alarm Management, Data Mining and Multivariate Methods with substantial economic impacts. The company is credited with creating the first no-maths method of modelling an Operating Envelope to create a MIMO Controller for continuous and batch processes as well as the first-ever method to calculate Alarm and Alert Limits linked to business objectives. These methods allow you the ability to rationalise alarms and work within a safer more controlled process. Additionally, the company has provided first real solution to the process analytical technology (PAT) and Quality by Design (QbD) requirements in the Pharmaceutical industry and significantly enhanced Six Sigma and similar process improvement methodologies across the process industries. Based around the novel concept of Geometric Process Control (GPC), PPCL offers process improvement, control and optimisation for your process.

Generally, GPC has been most commonly used in the Oil & Gas, Pharmaceuticals, Chemicals, and Petrochemicals, industries but process improvement activities can be undertaken anywhere large amounts of process data exists. Over 125 blue-chip companies have used GPC, a list which includes such names as



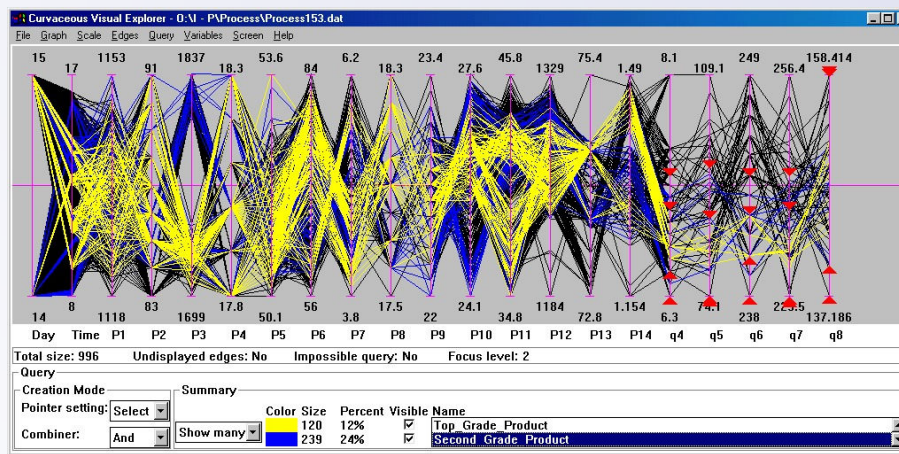
ConocoPhillips, Lanxess, GlaxoSmithKline, AstraZeneca, Woodside Energy, Lafarge Cement, Pilkington Glass and Sabic Petrochemicals.

The patented technology has been recognised by awards such as the EPSC Award for the Biggest Contribution to Improved Process Safety 2003, the Institution of Chemical Engineers Awards 2005, the Chemical Industries Association Award in 2006, the Institution of Engineering and Technology (previously IEE) Award for Innovation 2006 and the British Computer Society (BCS) Medal for Innovation in 2008.

PPCL

THE TECHNOLOGY

Geometric Process Control Geometric Process Control (GPC) is essentially a patented technology which has been applied to the process industries to enable new levels of process control that were previously not achievable. It is a graphical method which has significant advances on traditional methods, by allowing visualisation of hundreds of variables simultaneously instead of the 3 previously made possible by Cartesian coordinates. Process engineers can directly leverage their process knowledge and optimise processes, perform process stewardship and KPI reporting can be much improved for all.



THE PRODUCTS

Visual Explorer (CVE) is the primary visualisation tool that enables and improves Data Mining, Alarm Rationalisation and Six Sigma. It displays hundreds of variables on a single graph and provides extensive facilities for graphical queries and manipulation. It is invaluable for giving a whole-plant picture to the process engineer trying to understand and optimise the behaviour of 'long' processes that have many sub-units in series or parallel and has specialised functions giving the first-ever method for calculating consistent alarm limits.

Process Modeller (CPM) provides the first-ever models of the Operating Envelope of a batch or continuous process without requiring the user to have any mathematical knowledge. It provides dynamic alerts with automatic correction advice for batch and continuous processes in open or closed loop control as well as condition monitoring.

Response-Surface Visualiser (CRSV) provides visual response surface analysis for formulators and allows the design spaces and control spaces of QbD to be seen and compared leading to earlier product registration, simpler scale-up and easy transition to the



CPM Operating Envelopes of PAT in full-size plant.

THE BUSINESS BENEFITS

The aim of GPC is the reduction of variability in plant operations so that the plant operates at its best performance for more of the time.

Quantifiable benefits for both batch and continuous processes will be found in:

- Reduced Operating Costs
- Higher Yields
- Higher Throughput
- Increased 'right-first-time' product with less rework
- Lower consumption of additives
- Longer catalyst and equipment life
- Longer times between shutdowns
- Less energy usage
- Less off spec/recycle/waste production
- Less emissions / better compliance to emission targets
- More production capacity leading to deferment of new plant build
- Safer plants through better alarm limits and dynamic operator alerts
- Reduced alarm annunciation rates to EEMUA targets
- Reduction in false alarms

Qualitative benefits will be found in:

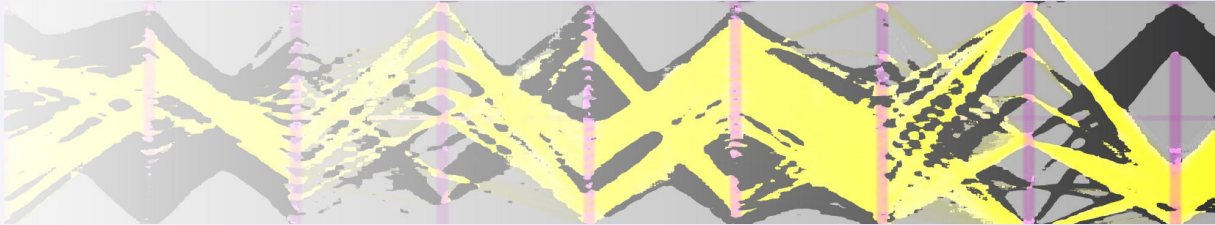
- More consistent product quality
- Better understanding of the inter-relationships between product specifications and between specifications and process variables
- Increased understanding and knowledge of the process
- Improved communications in the operations team and between the operations team and support groups
- Batch-to-batch comparison
- Similar equipment comparisons
- How-to-make memory for infrequent operations such as infrequent short product runs and plant start-up/shutdown.

DISCOVER WHY YOU BOUGHT A PROCESS HISTORIAN

PPCL

Visual Explorer (CVE)

An entire spreadsheet in just one graph



CVE works by analysing your processes' historical operating data and offline quality measurements. This data contains incredible amounts of information about how the process behaves but you have lacked the tools to extract much of this information in the past. A single graph in CVE can include thousands of variables in an easy-to use display, helping you to gain insight and understanding of your process problems. Improve Six Sigma and similar technologies by increasing project scopes, providing greater inclusivity for team members and using much more powerful multi-variate methods than previously available.

CVE allows you to:

- Remove the need to use mathematics
- Visually isolate cause and effect relationships under varied conditions gaining a unique insight into production
- See progress giveaway and the conditions under which it occurs
- Perform graphic queries extending across thousands of variables to focus on problem areas
- Find better Operating Limits and Alarm Limits much faster and more scientifically than ever before

"CVE cut our process losses by 40% and de-bottlenecked part of our process—all for zero capital cost."

L.H., Senior Process Engineer



tyco
Healthcare

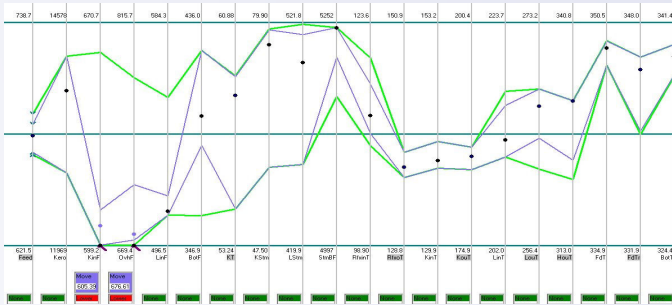
"C Visual Explorer showed us the real performance difference between two identical process units in a way that everyone could understand — and then told us how to change our operations to correct it."

B.D., Production Manager—INCO

PPCL

Process Modeller (CPM)

Models without maths



CPM provides the first-ever mathematical unification of process control, offline quality control and process alarm management. Using multi-dimensional geometry, you can model your entire process in minutes without ever seeing an equation. CPM

controls batch and continuous processes either by giving real-time guidance to the operator or by closed-loop control for maximum process efficiency and minimum waste. Process Modeller is the first ever method to calculate precise Alarm Limits. CPM uses a multivariable Best Operating Zone (BOZ), indentified by CVE (Visual Explorer), as its basis for distinguishing between normal and abnormal operation. The BOZ is then converted into a multivariable model. The new operator display is shown with an alarm rectification example. It provides operators with previously unavailable information, such as the currently usable ranges of all process variables and predicted ranges of quality variables.

CPM allows you to:

- Capture long-term knowledge of process capability, derived from process history and laboratory quality history
- Build models and update them in minutes making it practical and affordable for small plants and equipment condition monitoring applications
- See alarms and quality violations as they occur
- Get automatically generated Alarm logs and Limit files for ease of subsequent CVE analysis

"Improved Process Efficiency by 2% in the first 3 weeks of operation" "Reduced plant start-up time by a factor of 6"

Runcorn, UK

INEOS

'European Process Safety Centre award winner for the 'Biggest Single contribution to Improved Process Safety



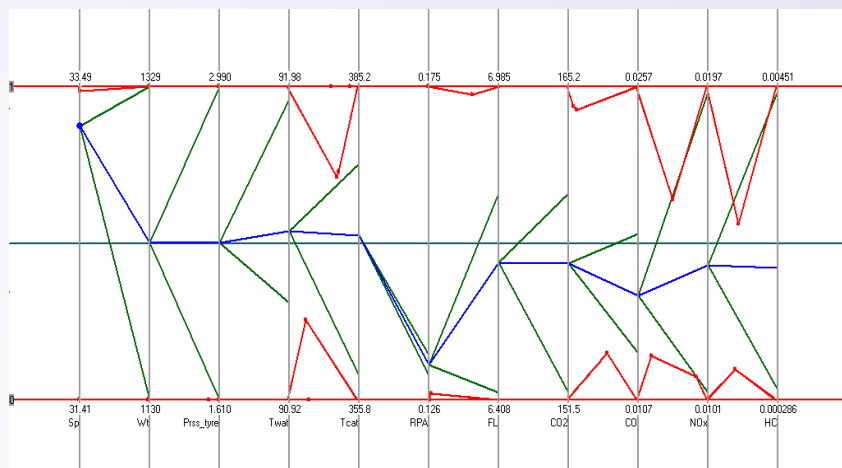
Response Surface Visualiser (CRSV)

Power to the Experimenter

PPCL

CRSV allows Experimenters or Formulators to perform their own Response Surface Analysis at their workbench in a fraction of the time currently required. It replaces the numerically intensive finding of multi-variable regression equations to describe the Response Surface with a simple visual method that anyone can use. For the first time

experimenters can see the complete set of relationships within their response surface.



In this display the experimental variables are on the left most 9 axes and the result variables are on the right.

The user

has begun to explore the Surface by fixing values for the first 4 variables. These are shown as blue dots. The remaining variable values are now indicated to lie within the green ranges. The model has correctly deduced that these experimental variables are independent of each other so any value can be chosen from the entire green In this picture, the result variables are on the left and the experimental variables on the right. Insert the desired results and see how to operate in order to achieve them.

CRSV allows you to:

- See interactions between variables . This is a powerful tool , especially to users of the very small datasets that are commonly found in Formulation and Design-of-Experiments activities
- Explore the entire surface and apply and check domain knowledge and possibly eliminate an Experiment or Formulation altogether for extra benefit.

CRSV saves time by predicting optimum solutions without maths"

Phil Plumb, Senior Scientist

AstraZeneca 

PROCESS SOLUTIONS WORLDWIDE

PPCL

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TODAY!

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