PRODUCT DATASHEET

MES Quality

Quality Operations Management and Statistical Process Control

Safeguard quality and compliance through the digital transformation and automation of quality sample plan execution on the shop floor. Reduce quality losses, minimize variation and improve yields with powerful statistical process control (SPC) methods, empowering plant operations with real time visibility into quality trends and notifications of rule-violations in real time.

Summary

MES Quality helps manufacturers to increase the efficiency in capturing critical quality information in alignment with production activities and in response to shop floor events. The software is designed for managing quality sample plan execution in manufacturing either by enforcing manual sampling or data collection procedures or through direct data sampling from automated plant equipment. Statistical Process Control (SPC) provides real-time visibility and monitoring of quality trends and variation with notifications of non-conformance to enable rapid corrective and preventive actions.

Business Value

Reduce costs of quality, regulatory and consumer safety compliance through the automation, standardization and enforcement of quality check procedures. Improve yields and minimise quality giveaway using SPC methods.

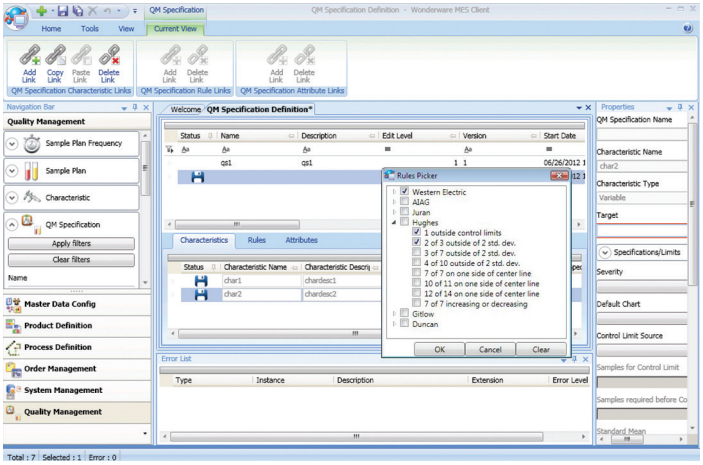
Benefits

- Improve product quality and reduce losses through tighter process control.
- Reduce lead time to corrective actions and minimize impact on downstream operations.
- Reduce off-spec production through enforcement of quality inspection requirements
- Enhance operational agility while securing compliance for ever-changing production schedules.
- Predict issues and trigger preventive actions to avoid quality losses.
- Reduce compliance cost with a complete electronic record of product quality and operational activities.
- Improve yields and reduce giveaway by driving quality closer to specification limits.
- Digital transform and standardize processes for quality inspections, corrective and preventive actions (CAPA), non-conformance (NC), material disposition or sign-off approvals.

Quality Operations Specification Management

MES Quality is configured in three easy steps. First the user sets variables and different frequencies for quality data collection. Then the software assists in creating sampling plans that define the events and frequencies carried out to secure complete coverage of inspections and documentation. Finally, the user defines the quality specification for a product, an operation, or piece of equipment by selecting the required variables, a sample plan definition and SPC rules applied to the data.

Powerful specification version management functionality ensures data consistency and supports continuous improvement.



Sample Plan Execution

Quality operations management

The software dynamically manages quality data sampling requirements according to the work order specification and removes these distracting and difficult to manage tasks from operators. This increases scheduling flexibility and improves overall responsiveness to unplanned events.

When a work order is started, the specified sampling plans are automatically generated and dynamically maintained in alignment with the work order execution progress.

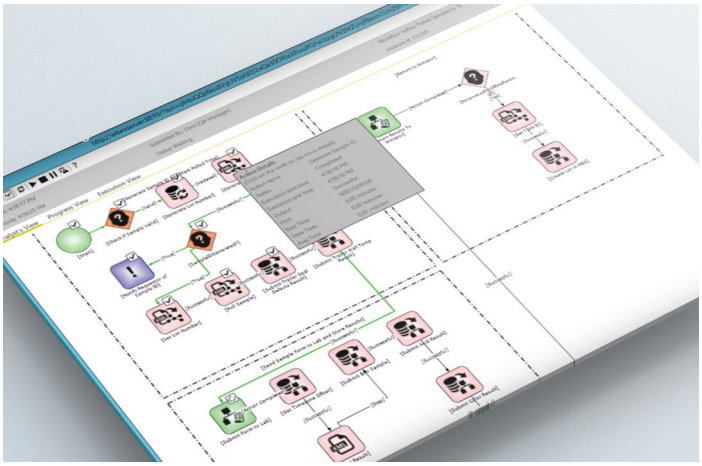
Future sample plans based on production unit count are predicted based on the standard production rate defined for the product currently produced. All related operator quality data entry requests and automatic sampling from connected devices are executed by the system. Spontaneous quality data samples can be triggered for unplanned or specified process conditions.

Workflow Management

Integration with AVEVA's advanced advanced workflow software allows users to model execute and document digital workflows for manual sample data collection as well as any standard operating procedures in response to planned and unplanned events such as non-conformance, out-of-control conditions or rule violations.

Advanced workflow management capabilities automate and enforce routine quality data entry procedures as well as escalated responses.

Digitizing and automating the operational quality procedures brings peace of mind that products have been tested to comply with customer, internal or regulatory requirements before they leave the plant.



Statistical Process Control (SPC)

Near real-time quality monitoring eliminates time delays to non-conformance notifications while minimizing impact on downstream operations. SPC analysis can be leveraged to "predict" issues and, in response, trigger preventive actions to avoid losses before they cost time and money.

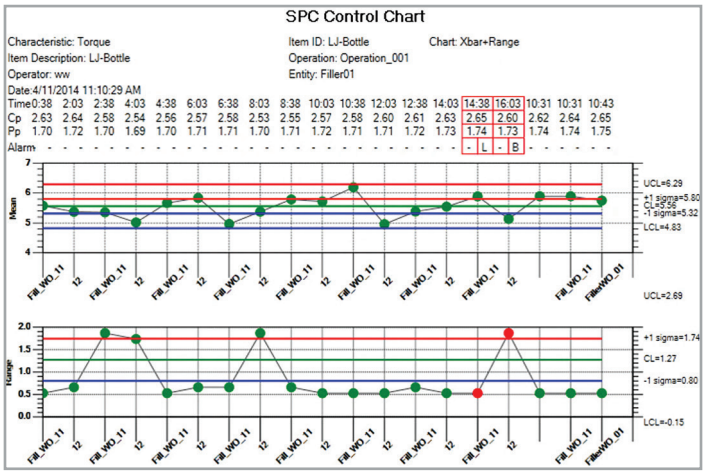
MES Quality includes rich SPC trend and chart display capabilities to monitor sampled quality data with indications of control and specification limit violations. Additional notifications can be configured based on a large set of standard SPC rules indicating specific trends and behavior of quality characteristics.

All industry standard SPC charts are included:

- X-bar and Range or Sigma
- X-individual and Moving Range
- Moving Average and Range or Sigma

Attribute Charts include:

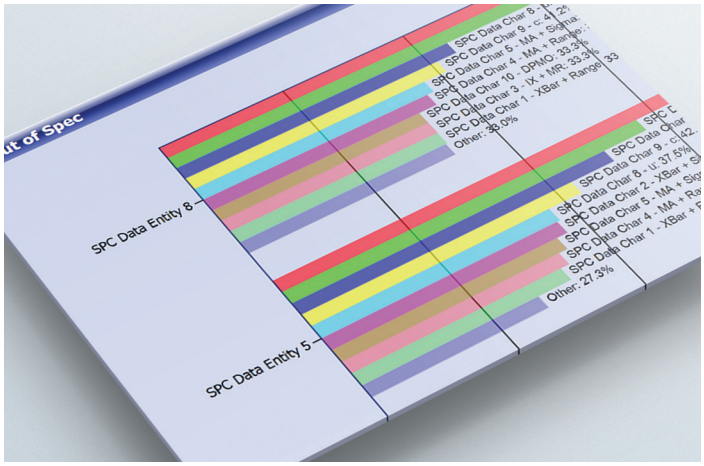
- P
- U
- Np
- C
- Defects per Million opportunities (DPMO)



SPC charts offer rich display options including statistics on the chart, individual values, mean, range and Cp/Cpk/Pp/Ppk KPI's

Quality Reporting

Many standard reporting formats are included with Wonderware MES Quality. These include quality characteristic detail reports, which filter sample data on multiple characteristics and summary reports, which provide details on equipment, product, work order and operation category. These reports are published for flexible information presentation via a web browser.



Quality – A Core Pillar Of Manufacturing Operations Management (MOM)

Manufacturing Operations Management is where inventory and production management, performance analysis, quality and compliance come together across a common platform and interface.

Where MES Quality helps maintain and continuously improve production quality, MES Operations ensures that processesare executed to specification and MES Performance ensures plant equipment is working to its fullest potential.

Model driven approach to multi site MES deployments

The key in multi-site applications is to enforce consistent quality, compliance and reporting through standardisation of business processes.

AVEVA's Model-Driven MES approach combines the traditional benefits of a manufacturing execution system with modern digital workflow management technology to bring people, organisations and processes together for increased efficiency as well as for capturing work processes and data collection procedures in digital workflows and related user experience (models).

Our methodology is based on reusable templates and a low code configuration environment, enabling an process centric approach to the digital transformation of best practices for reuse, sustainable standardisation and continuous improvement in plant and multi-site manufacturing operations.

MES Technical Specifications

Operating Systems

- Windows 8.1 Professional or Enterprise Edition (32-Bit and 64-Bit)
- Windows 10 Professional or Enterprise Edition (32-Bit and 64-Bit)
- Windows Server 2012 Standard or Data Center Edition (64-Bit)
- Windows Server 2012 R2 Standard or Data Center Edition (64-Bit)
- Windows Server 2016 Standard or Data Center Edition (64-Bit)

Database Technology

- Microsoft SQL Server 2012 in Express, Standard or Enterprise Edition (32-Bit and 64-Bit)
- Microsoft SQL Server 2014 in Express, Standard or Enterprise Edition (32-Bit and 64-Bit)
- Microsoft SQL Server 2016 in Express, Standard or Enterprise Edition (64-Bit)
- Microsoft SQL Server 2017 in Express, Standard or Enterprise Edition (64-Bit)

Language Support

MES Software includes support for the following languages:

- English
- French
- German
- Japanese
- Russian
- Simplified Chinese
- Spanish

For more information on AVEVA's Manufacturing Execution System and Manufacturing Operations Management solutions, please visit sw.aveva.com/operate-and-optimise