thermo scientific

PRODUCT SPECIFICATIONS

SPC-Full: On-line statistical process control full package

OXSAS software option for optical emission and X-ray fluorescence spectrometers

Keywords

Control, Monitoring, Capability, Statistics, Performance, Six sigma, Process, Quality assurance

Benefits

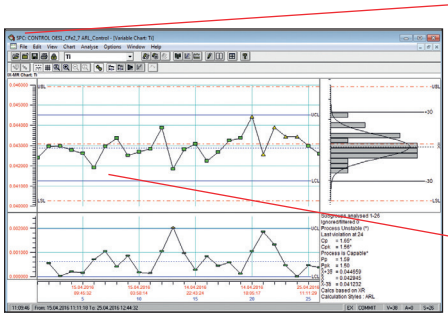
- Monitoring the performance of both production and measuring equipment is a key requirement of today's industry. Our company was first in applying on-line SPC (Statistical Process Control) techniques for instrument control. Thermo Scientific SPC supports the most complete set of SPC rules for best pro-active control, drastically reducing the risks of non-quality and their high associated costs.
- OXSAS is the last generation software for Thermo Scientific OES and XRF spectrometers.

Pro-active and on-line SPC

Thermo Scientific SPC illustrates abnormal response patterns to warn before the instrument goes out of control. It works fully on-line, is integrated in OXSAS and is designed to simplify the use of SPC functions:

- A study file is created automatically within SPC when the first analysis of a sample is received.
- The control limits are automatically calculated after a specified number of analyses.
- User Specified Limits can be defined in OXSAS, these limits can be used by SPC for computing Process Capability (Cp, Cpk) and Process Performance (Pp, Ppk)
- OXSAS can give an immediate alarm should a control or a production sample analysis fail to comply with the SPC rules. The SPC test(s) that failed are reported, which can trigger standardization.

OXSAS/SPC-Full is a software option that provides complete SPC capabilities, including full charting and processing functions, also for production monitoring.



Integrated SPC

Defining control samples

Control samples can be used to monitor the global instrument performance or specific analytical methods. Several control samples can be used for an analytical method and vice versa. This flexibility makes the most efficient use of control samples. Control analysis results can be automatically sent to SPC for processing or on operator's request.

Scheduling and alarms

Analyzing control samples is highly automated and simple, ensuring that procedures are followed to provide immediate responses to the tests. The control and standardization frequency can be optimized:

ThermoFisher SCIENTIFIC

- If a control sample exceeds the time set according to the control schedule, a warning message is shown.
- When a control sample is outside the control limits or fails other checks, OXSAS produces a warning.
- Besides control or user specified limits, up to 16 different trend, bias or statistical distribution checks can be used. The tests to apply and their severity are user definable.

SPC-Full

This option offers on-line graphical tools for the display, evaluation and printing not only of instrument control data but also of production sample analyses. It is a useful complement to SPC-Basic to document the Quality Assurance system and its day-to-day performance, for audits, studies, revisions, planning, cause-effects and actions analysis, etc.

SPC-Full has comprehensive control charting capabilities with graphical limit calculation functions. Moreover, it allows monitoring the instrument standardization (intensities). Further statistical analysis tools (Pareto, histograms, etc.) provide for in-depth analysis of the stored results.

SPC-Basic: instrument control

The SPC Full can be provided as a reduced package and price called SPC-Basic. This SPC-Basic includes all necessary SPC features for the routine verification of the instrument performance but operates only as a black box without any available graphical or capability indexes facilities. Also, production or standardization samples cannot be monitored by this simplified SPC option.

Control charts for spectrometer monitoring

The control charts and other utilities provide tools for the investigation, diagnosis and documentation of the spectrometer's analytical performance.

Production sample monitoring

Monitoring the production process is fully possible with SPC-Full. The production sample results can be sent to SPC for automatic evaluation either automatically or upon operator's request.

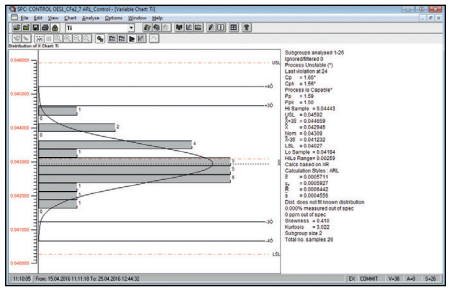
SPC not only generates alarms and warnings at analysis time in case of limit or trend check failures, but the proces capability can be calculated.

Stored results can also be retrieved and sent to SPC for detailed statistical analysis.

Statistical tools

SPC-Full also provides many powerful tools for in-depth analysis of the recorded measurements:

- Graphical display of all or some of the measurements for each element in a control or in a production sample. Control levels and specification limits can be included in the display.
- The available control charts are the mean and range charts or mean and standard deviation charts.
- Probability plot chart with histogram of mean values with detailed report of calculations.
- Process capability calculations: these give estimates of the likely future number of samples that will be out of specification.



Process capability

The SPC-Full package offers powerful statistical and graphical tools and a total integration in OXSAS. This provides immediate and advanced warning of possible instrument or process problems, making this option an essential tool no modern laboratory should be without.

Viewing shared SPC studies

By installing further licenses of SPC-Full on computers linked by Local Area Network, it is possible to access shared SPC studies produced by the on-line SPC of OXSAS. This provides the same capability to view or even to process the SPC studies on a remote computer as on the local one.

OES/X-Ray instruments

To keep you informed about our latest developments in instrumentation, automation and software, please visit **thermofisher.com/oes** or **thermofisher.com/xray**.

This software product specification is valid for OXSAS version 2.x

Find out more at **thermofisher.com/OXSAS**

ThermoFisher SCIENTIFIC