



Chingometrics™ is a Cognis-developed data treatment methodology applied to the development of calibration models for spectroscopic quantitative analysis applications, such as IR, NIR, Raman and NMR, etc. Chingometrics™ is the QTA™ system's enabling technology.

Have you ever run samples on your analysis equipment only to discover later that it was out of calibration? Did you ever wonder how long you had been getting invalid results? What caused the problem? When did the problem occur?

Many things can vary and affect the accuracy of your analysis. The variances are significantly more pronounced when analyzing specialty traits that rely on secondary spectral features to compute the result. As external influences change, adjustments must be made to compensate for these variations. Unless you take these external influences into consideration, you may end

up with invalid results, and not even be aware of it. The QTA™ system's proprietary Chingometrics™ technology solves this dilemma and removes these obstacles from your analytical program.

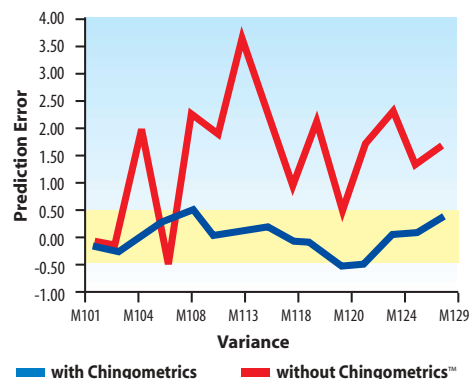
Chingometrics™ takes into consideration changes among instruments, in the environment and over time, delivering more consistent results for you and your organization, without any adjustments by the user.

Have you ever wondered if you would get different results for the same samples on different instruments?

The QTA™ system delivers consistent results from many instruments

The QTA™ system uses a centralized calibration algorithm for analyzing samples and calculating results. Each instrument accesses the central calibration, eliminating the need for maintaining multiple copies of a single calibration. The use of a centralized calibration is made possible by Chingometrics™. Chingometrics™ is a special data treatment methodology that takes into consideration the variances from different instruments. The graph to the right shows results obtained when analyzing the same sample using fifteen different instruments. The red line represents the results obtained without the benefit of Chingometrics™, the blue line with Chingometrics™. As you can see, the results with Chingometrics™ maintain a greater consistency without the need for calibrating or adjusting each instrument before analyzing samples.

Instrument Variance

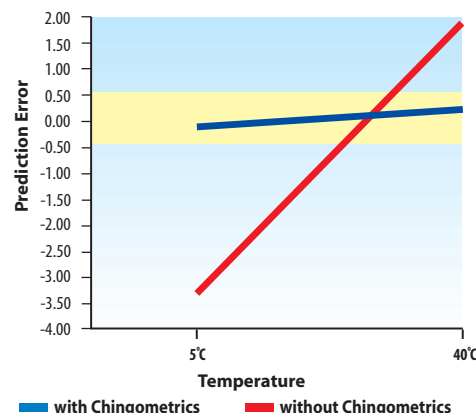


Do your results change when the environmental conditions change?

The QTA™ system delivers consistent results in varying conditions

The temperature of the sample being analyzed or the environment can have a significant effect when using NIR techniques. If these temperature changes are not taken into consideration, your results could vary. Data obtained from the same instrument over varying sample temperature ranges show that predictions maintain consistency with the use of Chingometrics™. Chingometrics™ also accounts for other environmental and physical changes such as humidity, sample size, operator technique, spectrometer maintenance and light source replacement, among others.

Variance With Temperature

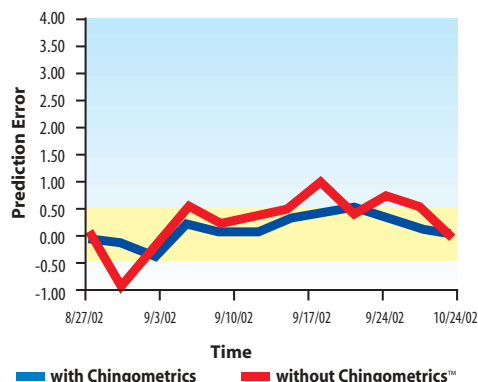


Have you ever received different results when analyzing the same sample on different days?

The QTA™ system delivers consistent results over time

Many things change during day-to-day activity, including the performance of an NIR instrument. Chingometrics™ considers changes over periods of time and maintains accuracy within a predetermined range. Analyzing the same sample over eight weeks demonstrates the consistency of results obtained with Chingometrics™.

Variance Over Time



*Specialty Traits tested were Oleic and Linolenic Fatty Acids in Canola.

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