

AvaNews Update—09/2007

Application Focus: NIR Spectroscopy Assesses Fruit Non-Destructively

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Development work with NIR absorption in fruit correlates traditional quality metrics with spectral analysis, and fast-scanning instruments with on-board signal processing enable in-line fruit grading.

Evaluating fruit ripeness has long been a fundamental issue in post-harvest technology, since ripeness is the main quality indicator for customers. Standard physical and chemical techniques allow the determination of some quality indicators, such as total soluble sugars content (SSC) and firmness, but these procedures destroy the analysed fruit. This is why, nowadays, the prediction of the shelf-life ripeness state is based mainly on sensory analysis and practical experience. However, experiments and development work by Avantes and some of its customers have shown that near-infrared (NIR) spectroscopy can provide rapid and non-destructive measurements of internal fruit properties, revealing SSC from the absorption bands of carbohydrates in this wavelength region.

A complete copy of this article is attached to this newsletter.

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Interested in a demo of an Avantes Spectrometer?

Avantes has a free instrument demo program!
Call or email us for more details.

AvaSoft Operating Tips

AvaSoft is Avantes proprietary spectrometer software. Below are some operating tips for users and interested parties:

Tip #1: By right clicking on the legend in the AvaSoft graph, the software automatically opens a display saved graph window which allows you to select previously saved spectra to view.

Tip#2: AvaSoft Full version 7.1.1 now includes a direct (not through ASCII) data conversion to MS Excel. All current users of AvaSoft Full can download this latest version on our [website](#).

Tip#3: If you are interested in seeing AvaSoft software before making a purchase, you can download the software for free from our website. By requesting a login on our [website](#), you will be issued a username and password that allows access to our software downloads. Once downloaded the software can be run in simulation mode with or without a spectrometer.

Product Focus: AvaSpec 256 NIR 1.7, 2.2, 2.5

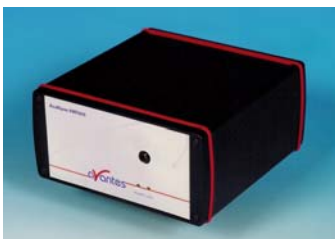


Fig 1: AvaSpec 256 NIR 1.7



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Avantes now offers three instruments specifically tailored for NIR spectral measurements from 900-2,500 nm. The AvaSpec 256 NIR 1.7, 2.2 and 2.5 feature our unique high resolution 50 mm symmetrical Czerny-Turner optical bench and Hamamatsu 256 pixel InGaAs linear detector arrays.

The AvaSpec 256 1.7 (Fig. 1) is a very cost effective solution for NIR measurements (under \$10K). Featuring the Hamamatsu G9203-256D detector, this uncooled instrument is capable of measuring 900-1750 nm with resolution as high as 6 nm (FWHM). The AvaSpec 256 2.2 and AvaSpec 256 2.5 (starting at \$19,950) are both dual stage Peltier cooled instruments. The 2.2 features the Hamamatsu G9207-256W detector and covers 1,000-2,200 nm with 10 nm resolution (FWHM) when configured with a 50 micron slit. The 2.5 features the G9208-256W detector and covers 1,000-2,500 nm with resolution as high as 15 nm (FWHM). In addition to the standard configurations described, each of these instruments can be configured with more highly ruled gratings for improved resolution over a reduced range.

All of Avantes NIR instruments operate with our USB2 platform which features native 16 bit A/D resolution, wireless communication capabilities and multiple digital and analog inputs and outputs for process control applications. The instruments can be controlled via AvaSoft proprietary software or via our DLL interface package.

Please contact Avantes USA at infoUSA@avantes.com or 1-866-678-4248 to learn more about our NIR line of instruments and accessories.

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Questions or comments? E-mail us at infoUSA@avantes.com or call Toll free: 1-866-678-4248