SciAps
ApNotes

A series of how-to's and best practices for field and laboratory analytical measurement. More ApNotes available at sciaps.com/apnotes

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Pharmaceutical

Inspector 500 Raman Analyzer for Pharmaceutical Applications

Now Verify All Your Excipients, API's & Finished Products

A Raman Analyzer for Every Compound

The Inspector 500, featuring a novel 1030 nm laser source, provides reliable identification of nearly any Raman-active compound. This includes Microcrystalline Cellulose (MCC's), Croscarmellose, and nutrients like Folic Acid, that historically confound Raman analyzers that utilize more common 785 nm laser excitation. Fear fluorescing compounds no more!

Best Ergonomics

ONE HANDED OPERATION

The Inspector's thumbwheel allow you to easily operate the Raman analyzer with one hand, on the go, climbing ladders, wearing gloves, however you analyze materials.

21CFR Part 11 Compliant

1030 nm laser

FEAR
FLUORESCENCE
NO MORE

The Inspector 500, featuring a novel 1030 nm laser, was developed specifically to provide reliable identification of the MCC's and other fluorescence-inducing compounds. The 1030 nm laser was chosen (instead of 1064 nm) because it matches with a lower power and more sensitive detection system, resulting in a smaller, lighter, more portable handheld with longer battery life. Combining the slightly lower 1030 nm wavelength with our free-space optics technology, the Inspector 500 achieves comparable signal levels as heavier, bulkier 1064 nm systems. More signal, less fluorescence, and superior 1030 nm portability!

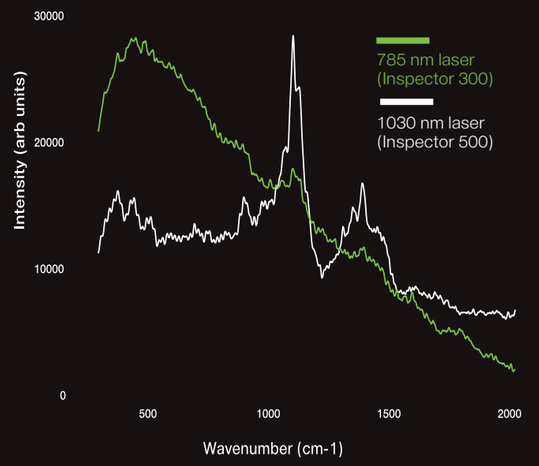


Figure 1. Comparative 785 nm and 1030 nm spectra for MCC Generic

One Example:
MCC Generic and Croscarmellose:

Raman spectra from MCC generic and Croscarmellose, using the 785 nm laser (Inspector 300) and the 1030 nm laser (Inspector 500) are shown in Figures 1 and 2 at right. The Raman peaks of the MCC and Croscarmellose at 785 nm are lacking features compared to those obtained with the 1030 nm system. The large fluorescence background is a side effect of 785 nm laser excitation. It obscures the Raman features of both cellulose compounds, as well as many others not shown. In contrast, the 1030 nm excitation of the Inspector 500 provides a clear signature for compound ID. MCC is a particularly good example because it can be modified to different degrees of crystallinity usually in the range of 40 to 60%. The Raman peaks from MCC that contain a larger proportion of amorphous material (i.e less crystallinity) can be obscured with high background fluorescence. The Inspector 500 has less background fluorescence interference and is the best overall choice for MCC verification.

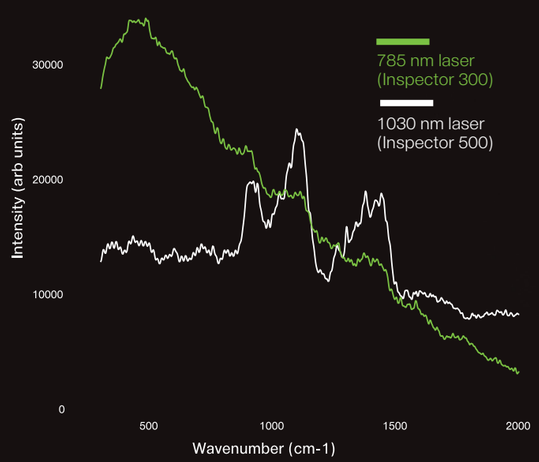


Figure 2. Comparative 785 nm and 1030 nm spectra for Croscarmellose

Superior Ergonomics and Safety

The Inspector class Raman analyzers maintain the best ergonomics of any handheld Raman. Carefully designed for all end-users - large and small, male or female -- the Inspector is tapered, well-balanced, and equipped with a well-placed wrist strap. The result: a handheld Raman analyzer that's incredibly easy to manipulate and operate single-handedly, for all types of users, with or without gloves.

Think Pentagonally

The tapered shape of the Inspector yields comfortable operation in all configurations - reaching above your head, into a container, testing at foot or knee level, even reaching behind or under a container of material. Contrast that with the ergonomic challenges of "brick shaped" or heavy pistol-shaped units.

Wearing Gloves?

We've re-invented the wheel. Touchscreens are notoriously difficult to operate when wearing gloves. The Inspector can be completely controlled by the push thumbwheel without removing protective hand gear.

Best Ergonomics

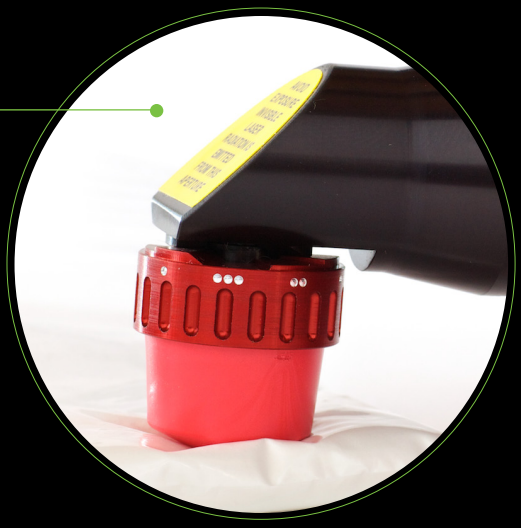
OPERATION
ONE HANDED

All Thumbs?

The Inspector is the perfect analyzer for you. The thumbwheel drive is within easy reach for any operator's hand to provide true one handed operation of the analyzer and display.

Eye Safety

SciAps patented right-angle testing accessory provides exceptional laser eye safety. The analyzer is placed onto a bagged sample, or in direct contact on a benchtop, and operated hands-free. The laser points directly into the sample, thus greatly reducing the risk from diffuse laser light. It is the safest way to operate a handheld Raman analyzer.



Accessories

Barcode Data Entry

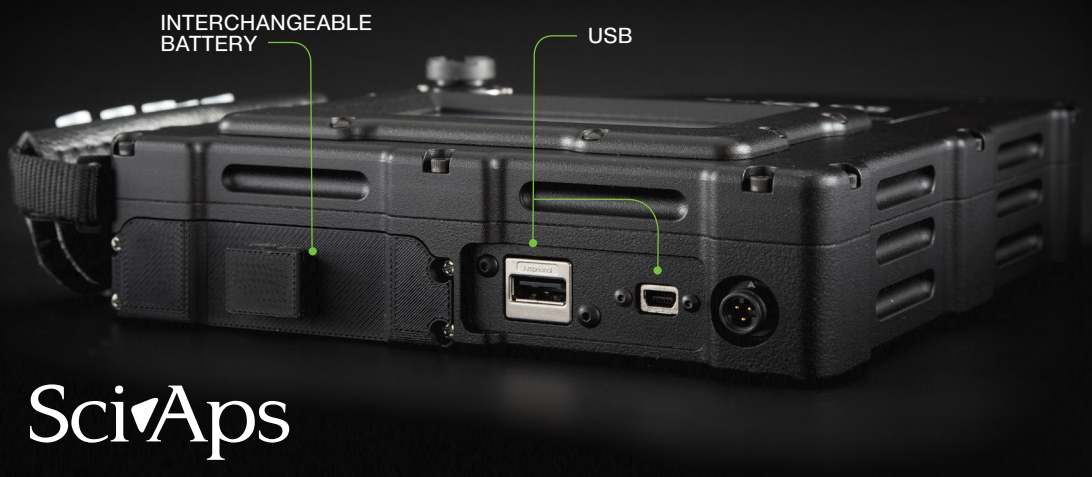
Our off-the-shelf barcode reader instantly provides sample ID data via Bluetooth into the Inspector. SciAps recommends off-the-shelf barcode readers, rather than those integrated into the analyzer. Small HH barcode reader is easy to carry, reach around or behind large containers, reach barcodes overhead - far easier than manipulating a "brick shaped" Raman analyzer with an integrated barcode scanner. What about new barcode standard? When new standards come along, it's an easy upgrade or replacement, without returning your Raman unit. If internal barcode scanners malfunction, you can't use the Raman unit. Much better to simply replace an off the shelf, low cost barcode scanner.

Transparent Pass/Fail decisions & method generation

NO
BLACK BOXES

PASS | FAIL

Think Outside the Black Box: Our NuSpec methods generation software provides 100% visibility and control to authorized users. Pass/Fail criteria, decision-making and method setup can all be viewed, modified and customized with appropriate password access. The Inspector is also compatible with many commercially available chemo-metrics programs. Don't get "boxed into" a software package that's inflexible and keeps you in the dark about critical pass/fail decision criteria.



SciAps

Bluetooth

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