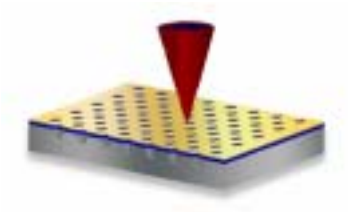
Klarite™ Substrates for Surface Enhanced Raman Spectroscopy

mesophotonics

Mesophotonics Klarite™ substrates provide a unique solution for Surface Enhanced Raman Spectroscopy (SERS). As well as generating unrivalled levels of Raman signal reproducibility, the very high signal levels achieved when using these substrates make taking Raman spectra as easy as obtaining fluorescence spectra, with significantly lower detection limits for many molecules.

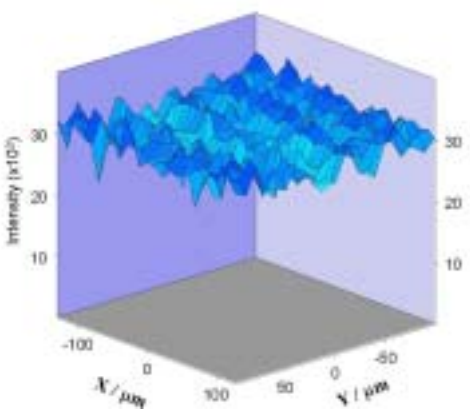
Reproducibility is designed into Klarite™ substrates by using volume manufacturing procedures from the semiconductor industry. Tests have shown relative standard deviations of <10% are achieved with only 5mW excitation at 633nm or 785nm. This includes all variations between different chips without any data selection or filtering.



Klarite™ substrates feature a systematically designed nanometre scale patterning of the Gold surface. Comprising regular arrays of holes, the surface patterns form photonic crystals which control the surface plasmons that govern the SERS amplification. By leveraging its experience in photonic crystal design, Mesophotonics is able to control the surface plasmon effects and thus control the enhancement of the Raman signal.

- Key Features
  - Exceptional signal reproducibility
  - High Raman signal enhancement
  - Compatible with standard Raman spectrometers
- Applications
  - Forensics
  - Trace analysis
  - Medical diagnosis
  - Homeland security
  - Drug development
  - Chemical and biological detection

Reproducible SERS signal over 200μm x 260μm area



Spectra taken with Renishaw's inVia Reflex Raman microscope, 10mW 785nm excitation confocal configuration, 1sec exposure time. Intensity of 1072cm^{-1} Benzenethiol Raman peak is shown.

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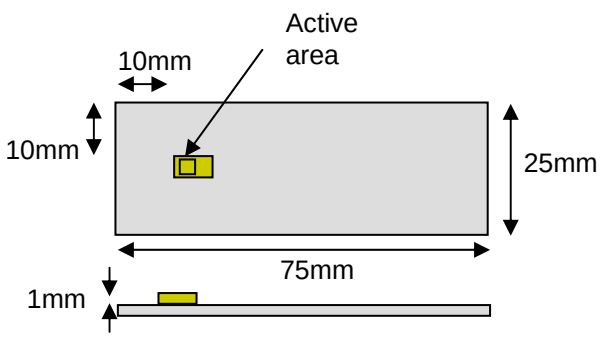
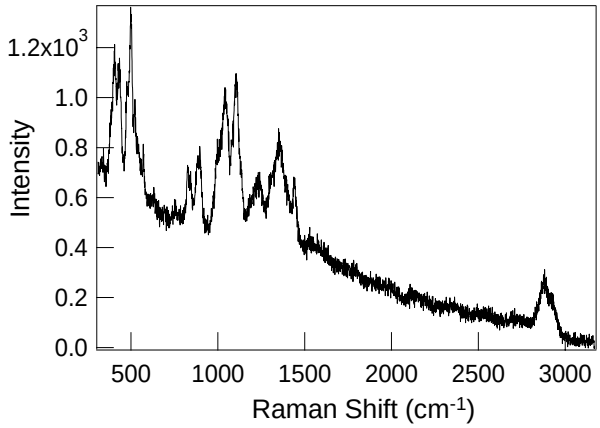
Device parameters

Klarite™ SERS chip*	
Active area (custom areas available)	4 mm x 4 mm
Slide size	75 mm x 25 mm x 2 mm
Active surface	Textured Gold
Typical operating parameters	
Raman excitation wavelength (for others please enquire)	633 nm, 785 nm
Excitation power (typical for 10second signal acquisition)	5 mW
Enhancement factor, relative to a non-enhancing surface	>1,000,000

Chip Dimensions



Typical Spectrum of Glucose



Spectrum taken with Renishaw's inVia Reflex Raman microscope, 1mW 785nm excitation, 10sec exposure.

Ordering Information:

Klarite™ substrates are supplied in a minimum quantity of 5 pieces, premounted on a standard microscope slide.

For more information on this product please contact your local Mesophotonics representative

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