



## Q-SERS™ G1 Substrate

Q-SERS™ G1 substrates (patent-pending) are designed to generate Surface-Enhanced Raman Scattering (SERS) signals when used with a Raman spectrometer. Q-SERS™ G1 substrates carry gold nanostructures fabricated on a silicon wafer. They can provide high enhancement of Raman signals, repeatable and reproducible testing results, and long shelf life. The superior performance of Q-SERS™ G1 substrates make them ideal for applications in analytical chemistry, agricultural and food safety, water safety, pharmaceutical, medical, forensic science, and many other areas.

### ● Enhancement Factor and Detection Limit

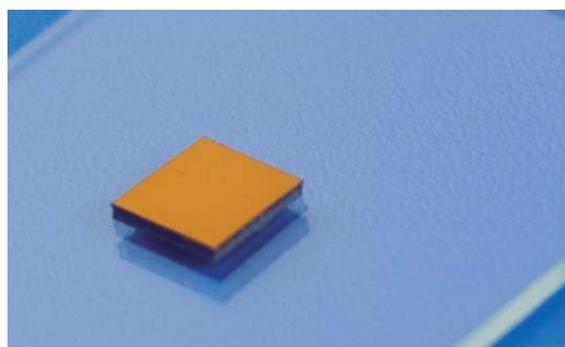
Q-SERS™ G1 substrates provide satisfactory enhancement factor for many different chemical and biological samples. The detection limit for chemicals ranges from ppb (part per billion) level to ppm (part per million) level. Here are some examples of different detection limits for food contaminants tested with a bench-top Raman microscope: crystal violet (20 ppb), melamine (250 ppb), and azinphos-methyl (<1 ppm).

### ● Shelf Life

To obtain the best performance, Q-SERS™ G1 substrates should be used within 6 months of purchase. Q-SERS™ G1 substrates should be used within 2 weeks after the package is opened. Please try not to open the sealed package until SERS measurement. The enhancement factor of these substrates may degrade as much as 50% after 12-month exposure in air.

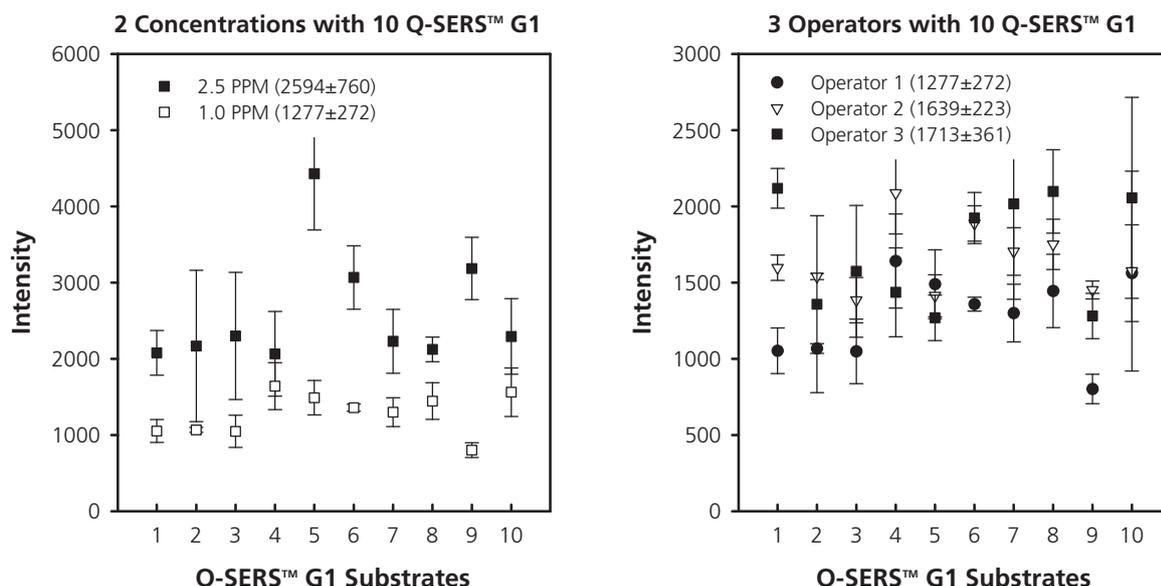
### ● Size

A Q-SERS™ G1 substrate consists of a 5 mm × 5 mm silicon wafer with gold nanostructures and a standard microscope glass slide (3 inch × 1 inch, 75 mm × 25 mm). We also provide customized products with different specifications, such as size, mounted or unmounted, different slides, etc.



● **Repeatability and Reproducibility**

Q-SERS™ G1 substrates are ideal for SERS analysis to generate repeatable and reproducible testing results. In order for users to have a better understanding of the quality of Q-SERS™ G1 substrates, the following tests were conducted by three operators who measured melamine deposited on 10 different Q-SERS™ G1 substrates. The tests were conducted with a bench-top Raman spectrometer with a 50x objective. Three SERS spectra from different locations on each Q-SERS™ G1 substrate were collected and the average peak intensity at Raman shift of 676 cm<sup>-1</sup> with standard deviation was plotted. The left figure shows testing results from 1.0 ppm melamine and 2.5 ppm melamine by operator 1 and the right figure shows testing results from 1.0 ppm of melamine. The intensity variation between different Q-SERS™ G1 substrates (same concentration and same operator) may originate from the variation of droplet residue concentration or the substrate variation. These results indicate that, even being tested by different operators and/or under different conditions, Q-SERS™ G1 substrates are still able to differentiate small concentration variation and provide repeatable and reproducible testing results.



● **How to Order**

- Quotation and order forms can be requested through email: sales@Q-SERS.com.
- Please place online order request through our website: <http://www.Q-SERS.com>.
- Both purchase order and credit card are accepted.



Nanova Inc. is a high tech company using cutting-edge technology, including nanotechnology, to develop devices and sensors for medical and other applications. The expertise of our core team members in nanotechnology, sensors, medical science, and food safety allows Nanova to develop a variety of innovative and high quality products that impact various niche markets. Nanova welcomes potential collaborations with researchers and industry leaders who share common interests with Nanova. Q-SERS™ represents Nanova’s critical efforts in the areas of analytical chemistry, food safety, and medical diagnostics.

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