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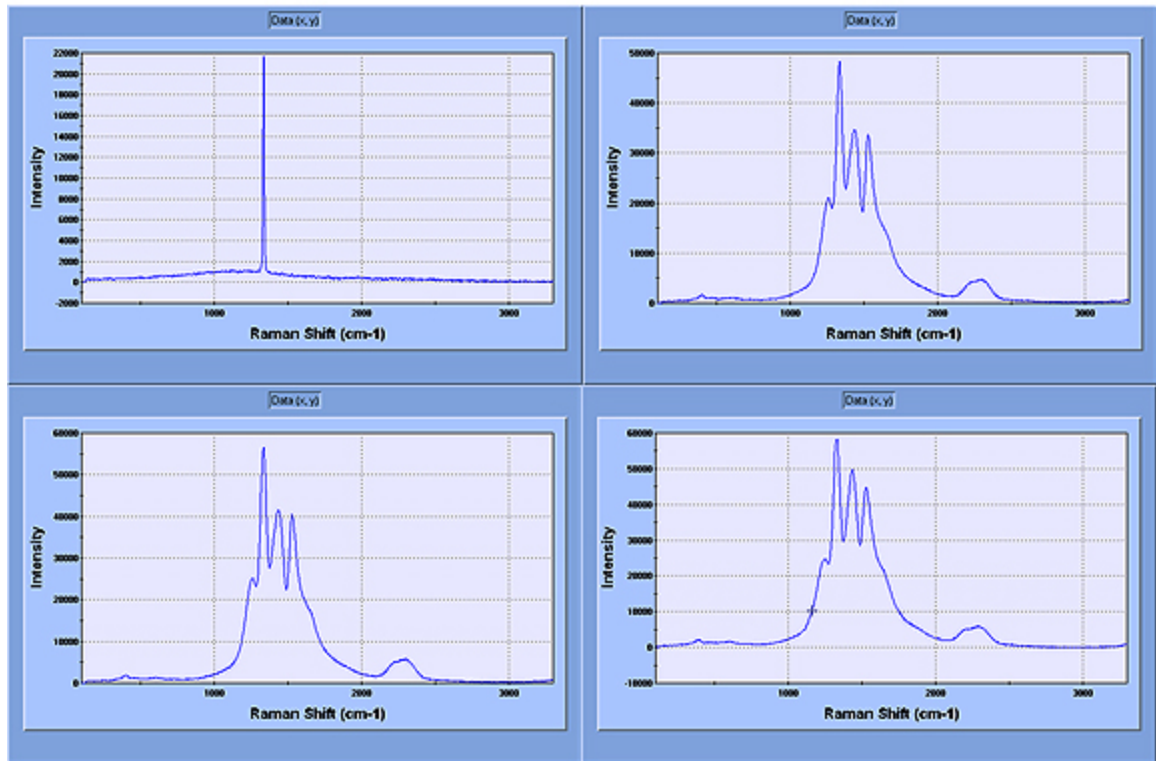
## **Diamond Coated Gemstones?**

**Is this really a diamond coating they are putting on these cubic zirconias?**

In our first part of this report we demonstrated that all of these so-called "hybrid" and/or "diamond like coated" gemstones tested on our [Enwave Raman](#) Microscope resulted as ordinary cubic zirconia (see below). And across the board to this date, all of these stones we have tested from a variety of suppliers all test out as cubic zirconia based on the Raman. However, after we obtained a new generation of these stones we found some significant anomalies in other test results that lead us to believe that indeed something strange is being done to these stones, and strange is not necessarily good. But important is the first fact that all still test as CZ on the Raman.

## Diamond

## Cubic Zirconia



## Famous Brand "X" "He Who Must Not Be Named"

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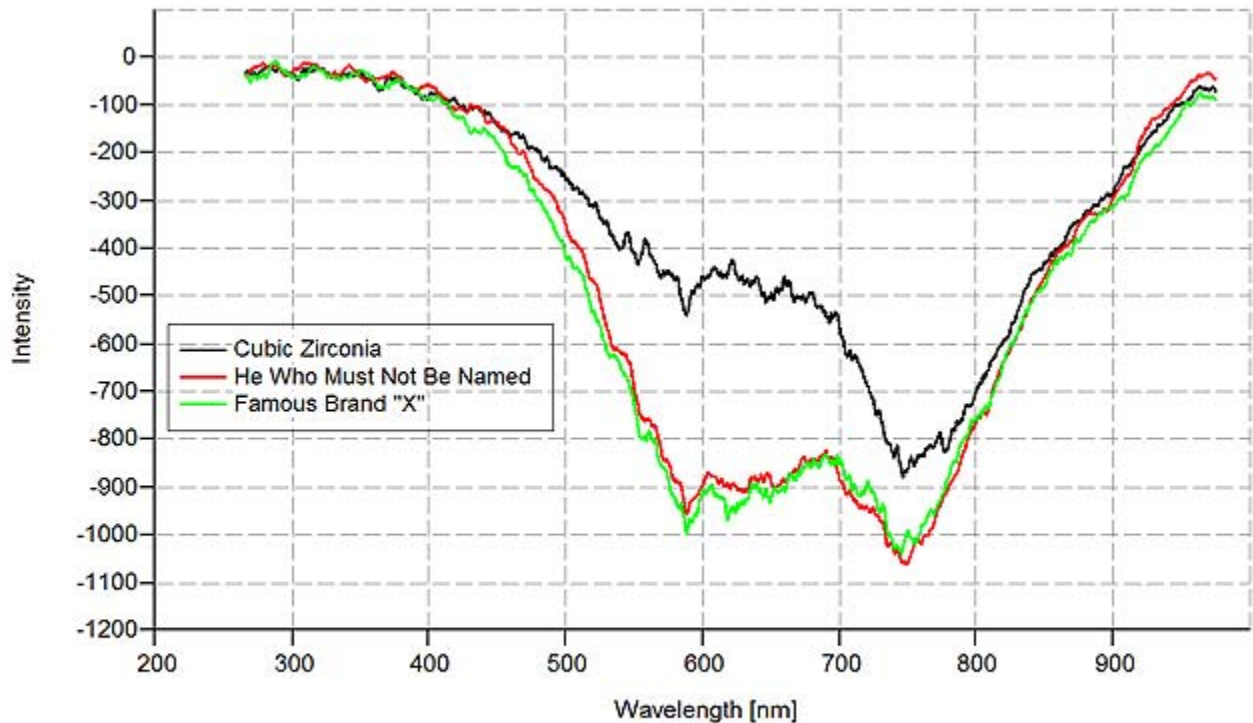
We continue to refer to these stones as #1 **CZ** (plain old \$5 cubic zirconia), #2 **He Who Must Not Be Named** (a famous supplier who does not like their name used in the same sentence with the facts about their product), and #3 **Famous Brand "X"** (one of the biggest players of these products). These three pictured below. **CZ** below left. **He Who Must Not Be Named** in the center. And **Famous Brand "X"** below right. All of the ensuing info will follow this structure.

At issue is the claim that these folks make about putting a "diamond-like coating" on their stones. that their stones are some kind of hyped up "hybrid", or even that they have come up with some "secret sauce" of a gemstone that is unlike anything on the market. Beyond the Raman results above are our results based on new instrument testing of these latest products.

Remember.....**CZ**.....**He Who Must Not Be Named**.....and **Famous Brand "X"**.



Below is a normalized composite reading of the three stones through our [GL Gem Spectrometer](#) from the Canadian Institute of Gemmology. Remember that all of these stones have already tested on the Enwave Raman as cubic zirconia. And based on our control CZ stone, the other two give us the same general spectrometer response, although in slightly different intensities.



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We recently obtained the latest generation of UV-VIS-NIR Spectrometer from [Imperial Gem Instruments](#), known as the MDM Spectrometer. Just like its predecessor, the Challenger (that we have), the MDM Spectrometer allows us to actually see the absorption and transmission lines from the ultraviolet range up into the near infra red. From around 300nm up to the edge of 1000nm. This includes the VIS or visible range of around 400nm to 700nm. Below you see our three test stones in the VIS. Note that below left is the control CZ, and beside it are the other two as listed above. Same spectra but in slightly different intensities. Now comes the fun....



The very cool thing about the Imperial Gem Instrument's spectrometer is that it allows you to see something that....you really cannot see. Our eyes cannot normally see into the infrared part of the

spectrum. But the folks at Imperial have created a spectrometer that produces a real time, actual image of the infrared right on a LCD screen. Below, you are actually seeing into the infrared part the spectrum in the 880nm range. **CZ, He Who Must Not Be Named** and Famous **Brand "X"**. A matched results using the Raman (top) and now matched using UV-VIS-NIR (above and below). The comparisons end there.



Below again, the ambient light image of the **CZ, HWMNBN, and Brand "X"** cubic zirconias. As should I mention again,.....they are all cubic zirconia. Nothing to indicate any hybrid stones. Nothing to indicate any serious anomaly in their composition. But, there is something going on with them we look at the long and short wave ultraviolet light reaction.



Above are the CZs in ambient light. Below you see these same three in long wave ultraviolet light. Note that the stone from **He Who Must Not Be Named** has a significant brownish yellow UV reaction while **Brand "X"** has a more subdued brown reaction. The control CZ below left is inert. While these are all CZ, something is strange about the specimens from the companies claiming diamond-like coating.





And below you see these same three in short wave ultraviolet in timed exposure. Again the center stone from **He Who Must Not Be Named** has a pronounced brownish color, while the **Brand "X"** stone has a more subdued reaction that then control CZ (although difficult to photograph in timed exposure SWUV). This tells us that something is indeed different about these stones. But the **GRAND FINALE** is below.....



Next we return to our Jemeter Digital 90. Below left is our control CZ. Center is from **He Who Must Not Be Named**. And below right is **Famous Brand "X"**. It is our belief that there is some kind of coating on these two stones that is driving up the refractive index above the normal CZ refractive index of 2.17 and causing the strange UV reaction. It is also causing the subdued spectra of these specimens in both the GL Gem Spectrometer and the MDM Spectrometer. Here is what our research is telling us about that coating.....



Razor blades, DVDs, and even the glass topped scanners in your grocery store check out stand are coated to make them resistant to scratching to every day wear and tear. It has been reported to us by those who are connected to this subject that this is the process being done on the stones by **He Who Must Not Be Named, Famous Brand "X"**, and most other companies claiming some sort of CZ hybrid, "diamond-like" coating, etc..... The coating is reportedly some sort of **amorphous carbon coating**, but it is certainly not "diamond" in the classic sense. It does not impart any kind of diamond like hardness to a CZ, which we proved in our 2006 report where we scratched a \$150.00 stone from **He Who Must Not Be Named** with a \$5.00 CZ from Signity. And based on the actual brilliance of the CZ as compared to the other two above, we see no benefit in brilliance or beauty from one to the other from this amorphous coating.

We should note that it is possible to place a true CVD vapor diamond coating on a cubic zirconia. The cost to actually do this process, as compared to what you would actually have in the end, would be highly prohibitive and we find no evidence that would indicate that this is being done on any of the stones we inspected.

The excuse used by the companies is that the coating is too thin to verify. Well, even if that is true then what good is it? It does not impact the hardness or the brilliance in the slightest. So what good is this coating? Here is the real benefit.....

Ordinary cubic zirconia sells for about \$5.00 per carat. But....**He Who Must Not Be Named gets over US\$150.00 per carat for their cubic zirconia** based on their claim of this coating that research says is the same as used on your razor blades and DVDs.

Bottom line is that we see no evidence that these claimed coatings have any positive impact on the actual cubic zirconia. They do not increase hardness. They do not increase brilliance. They do not increase beauty or durability. The only thing they appear to increase is.....price.

But it's a great dog and pony show for unsuspecting consumers. I guess P. T. Barnum was right after all.

**He Who Must Not Be Named** does millions of dollars a year with this stuff.

Robert James  
President, ISG

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