

On occasion, gemologists may be tempted to identify a material by sight alone, especially when the identity appears obvious and the cut appears native. Recently presented to Stone Group Laboratories were two pale green stones, one 8.18 carats., measuring 16.9 x 9.2 x 6.7 millimeters, and the other 6.39 carats, measuring 16.2 x 7.8 x 6.0 millimeters, and both were presented as tourmaline. They gave a convincing appearance of tourmaline and were the characteristic, elongated shape commonly seen in green tourmalines. Surprisingly, they were singly refractive, and the single RI reading of 1.530 eliminated any possibility of their being tourmaline. The GemmoRaman-SG readily confirmed them to be glass. The specific gravity was measured at 2.52, between that of glass and tourmaline. Interestingly, we were able to detect a small amount of lead which explained why the specific gravity of these stones was higher than common glass. Visual Optics provides a quick means of confirming the material is not birefringent, with only a single, blurred spectrum seen; green tourmaline spectra are typically diagnostic by this method.



Photo- Bear Williams

The close resemblance in color to that of green tourmaline makes these a particularly convincing imitation. Even after confirming they were not tourmaline but rather glass, our eyes were not convinced other than by a lack of visible pleochroism, which is typically minimized by this traditional tourmaline cutting style. Using ED-XRF, we compared the chromophores of a natural tourmaline to that of this glass and found that the amounts of manganese and iron were very close in proportions to a natural green tourmaline of comparable color.

It should be noted that this is the second time Stone Group Labs has seen this type of imitation tourmaline. Earlier this year, two similar stones, purchased by an experienced dealer at the 2014 Tucson gem show, were submitted for cuprian testing; and they also had the elongated, rectangular cut characteristic for blue to green tourmaline but were slightly deeper and bluer in color, more toward the indicolite variety of tourmaline. Again, the color was extremely convincing, even when the actual identity was known. Although tourmalines are occasionally seen to imitate stones such as emerald or ruby, one should now be on the lookout for stones that appear to be tourmalines but are actually artificial glass. With the recent dramatic rise in tourmaline prices, such frauds will likely become more common. Simple gemological testing is all that is necessary to ensure you have tourmaline rather than glass.



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