Irradiated Blue Diamond

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Wuyi Wang, TMM, and Thomas Gelb

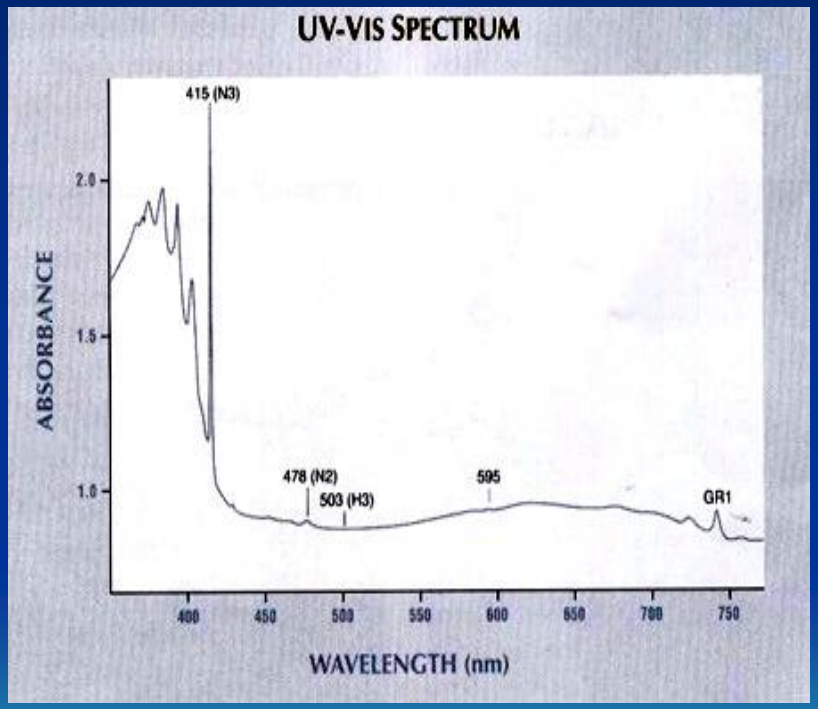
정리　중앙보석감정원

Test about sample 1 which was submitted to GIA

- The 11.60 ct. blue color diamond
- No green or brown stains
- Slight color concentration at the edges of crystal
- Strong blue to LWUV, weak green-yellow to SWUV
- FT-IR indicate Type Ia with high nitrogen content

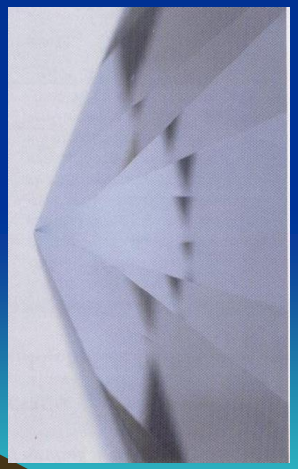
Spectrum Analysis

- Strong GR1 band(due to V^0)
- 595 nm were detected
- Strong N3, moderate N2 weak H3
- can conclude it is irradiated because the naturally colored diamond containing H3 and 594nm absorption is absent and GR1 is the proof of radiation



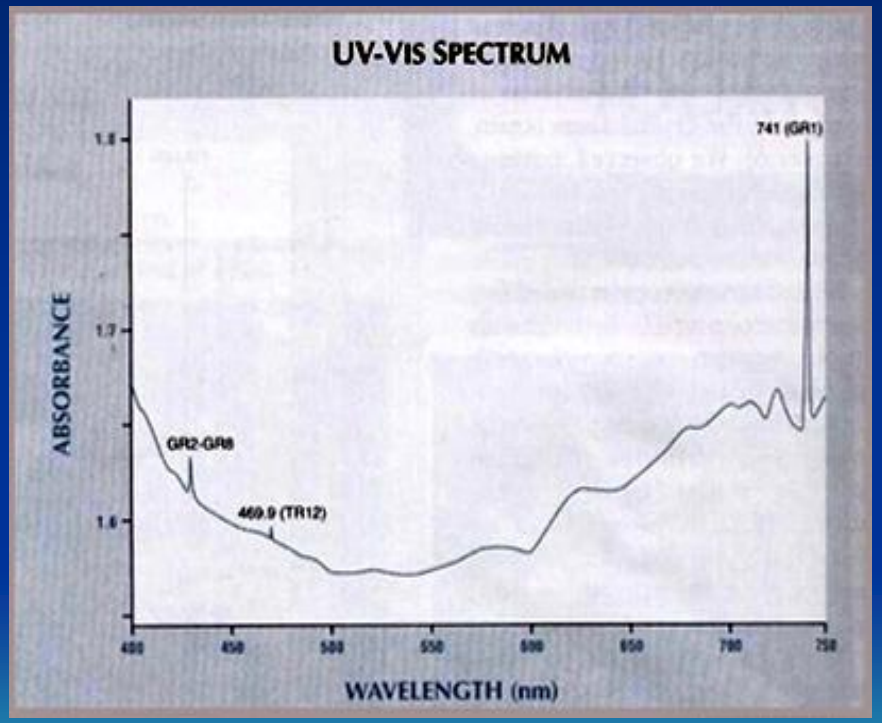
Test about sample 2 which was submitted to GIA

- 2.00 ct Fanct dark green-grey type IIb diamond
- No radiation stain, nor distinct characteristics
- Inert to LWUV/SWUV
- FT-IR shows the typical Type IIb (2454cm^{-1}) absorption
- In diffused light, distinct blue color concentration near the culet



Spectrum Analysis

- Strong GR1 band(741nm)
- A clear TR12 absorption (469.9)
- In PL spectrum, intensity of H3 is much stronger than that of Nat. blue type IIb
- can conclude this diamond had been treated by radiation



Detection Point

- significant H4(496nm), H1a, H1b(2024nm), H1c(1934nm) and 594 nm absorption means the origin of color is caused by radiation with or without annealing.
- strong H3(504nm) absorption is unusual in Nat.
- In irradiated blue diamond, a strong and broad GR1 absorption(741nm) is distinct feature.