



HPHT-Grown Diamonds might Escape Detection as Synthetics, Once They are Treated with Irradiation

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Source: Diamond Services

Diamond Services, the Hong Kong-headquartered developer of technological systems and services for detecting synthetic, imitation and treated diamonds, has issued a worldwide alert to the jewellery and gemstone trades stating that research it has conducted indicates that synthetic diamonds, which have created under conditions of High Pressure-High Temperature (HPHT) and then subject to irradiation treatment, may be escaping detection by many of the screening devices available in the market that are testing diamonds at room temperature.

The trade alert refers specifically to readily available detecting devices that examine diamonds at room temperatures, screening out stones that display phosphorescence after being exposure to an ultraviolet (UV) source.

Phosphorescence is typical in HPHT-grown synthetic diamonds, which once removed from a UV excitation source will luminesce for a period of milliseconds to tens of seconds. It is, however, a phenomenon that is almost non-existent in naturally formed diamonds, being limited almost exclusively to Type IIb natural stones, which make up not more than 0.1 percent of the total number of available diamonds.

Research conducted by Diamond Services has revealed that once an HPHT-grown synthetic diamond has been subject to irradiation, the diamond no longer will phosphoresce at room temperatures, meaning that it is unlikely to be screened out by many of the popularly used detection devices available today in the industry.

Irradiation is typically used to alter the colour of a stone, and Diamond Services reports that this masking of the phosphorescence effect has been witnessed both in diamonds that are colour-altered and diamonds in the standard colour ranges.

"Our latest finding indicate that the diamond and jewellery trades should show extra caution, but we do not claim that irradiated HPHT-grown synthetic diamonds are undetectable," stated Joseph Kuzi, Diamond Services' founder and president. "First, synthetic detection, like our DiamoTest® procedure, which examines diamonds at the temperature of liquid nitrogen are extremely accurate, irrespective of whether the diamonds have been subject to irradiation. Second, it is a relatively simple to detect irradiated diamonds using Raman spectroscopy."