Nineteen years ago GIA published the results of a human experiment in the observation of diamonds with various amounts of blue fluorescence. An introductory editorial indicated that this study “should bring into question the trade’s lower “bid” prices for moderate to highly fluorescent diamonds in the better colors”.

GIA was addressing the negative publicity concerning blue fluorescent diamonds, which began during the diamond investment craze of the late 70’s, early 80’s. Since then blue fluorescence has been an obstacle to marketing, leading to discounting compared to non-fluorescent diamonds of the same color grade.

There are several reasons for the concern and distrust by consumers and the trade of these gemstones that glow blue when excited in the dark by ultra violet (UV) radiation, Figure 2. The reasons are mostly due to misinformation and misguided publicity except for one valid concern. That is the overgrading of color that according to members of the diamond trade is too often observed. Overgrading results from the use of UV-containing, fluorescent lighting in color grading.

In reaction to the GIA study’s conclusions Martin Rapaport commented in the April 1998 issue of the “Rapaport Diamond Report”: “Unfortunately, the probability of a lab overgrading a fluorescent stone is much greater than a non-fluorescent stone and a large percentage of high color mistakes turn out to be fluorescent.” “Obviously from the market perspective there appears to be a reasonable basis for price discrimination against fluorescence. The labs are going to have to be very serious about not overgrading the color of fluorescent stones even though these stones tend to appear whiter than they are”.

Fast forward nineteen years to today. Gemologists are advised to use unfiltered UV-containing fluorescent lighting that approximates northern daylight as the standard for color grading. This requirement for UV in the lighting is an abandonment of the grading principles adhered to by the laboratories and the diamond trade up to and through the 90’s. In addition, the variability of UV in fluorescent lighting is a cause of inconsistent grading of fluorescent diamonds.

Graduates of the GIA in the 1960’s through the early 90’s were taught that “Fluorescent diamonds should be graded at their color in artificial light devoid of ultraviolet radiation, rather than at their daylight appearance”. They learned that grading in daylight or fluorescent light with the attendant UV radiation will result in overgrading a blue fluorescing diamond. Eric Bruton’s book, “Diamonds”, indicated that gemologists worldwide shared these views on illumination for diamond color grading. He said a “very important
consideration is that any fluorescence in the stone must be suppressed”….”It is therefore important to grade stones in white light that is relatively free of ultra-violet”.

The light yellowish tints in a type 1a diamond, which comprise 98% of gem quality diamonds, combine with the various amounts of blue fluorescence, excited by UV and Visible Violet (VV), to give blue-fluorescent diamonds a whiter “perceived color” than is seen in lighting where fluorescence is not noticeably stimulated. Wade said “Some of these stones are inferior in beauty to pure white stones when viewed under a light which does not cause them to fluoresce.”[Wade, 1916]

Nearly two decades have passed, and the problem remains due to the almost universal use of fluorescent lighting in diamond color grading. The result is continuing distrust of blue fluorescent diamonds with the consequent discounting required to sell them.

From Wade’s time to this day gemologists and the trade often refer to the diamond’s color unimproved by fluorescence as its “true color.” It is the color commonly seen in a diamond at typical viewing distances from artificial illumination at night or indoors out of daylight. There the light at the diamond contains insufficient UV (less than one microwatt) to stimulate grade whitening fluorescence.

Restoration of grading for the diamond’s true color can be accomplished by the use of polycarbonate plastic such as Lexan. Polycarbonate is an effective and inexpensive filter that blocks the UV in fluorescent lighting, removing its grade whitening effect on blue fluorescent diamonds. Another solution is the use of white LED technology. LED lighting provides inherently UV-free grading light avoiding noticeable stimulation of fluorescence.

Either solution is consistent with the trade’s historical desire that diamonds be examined for their unenhanced “true body color” in lighting largely free of UV.

A return to the practice of grading a diamond’s true color rather than its fluorescence enhanced color would benefit the diamond industry in several ways.

First it would remove the distrust and stigma attached to fluorescent diamonds.

Second, the rarer blue-fluorescent diamonds that hold their high-white color in the absence of fluorescence would be recognized for their superior beauty and rarity to diamonds that drop in color.

Thirdly, blue-fluorescent diamonds could be shown to whiten from their graded color, and sometimes appear blue-white in natural daylight. Promoting this advantage in comparison with non-fluorescent diamonds of similar grade would return the marketing advantage to blue fluorescent diamonds that they once enjoyed.

By grading in lighting that does not stimulate fluorescence, fairness and consistency can be achieved, restoring trust in and rekindling desire for this outstanding gemstone.

References:


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