Olympia Diamond Collection

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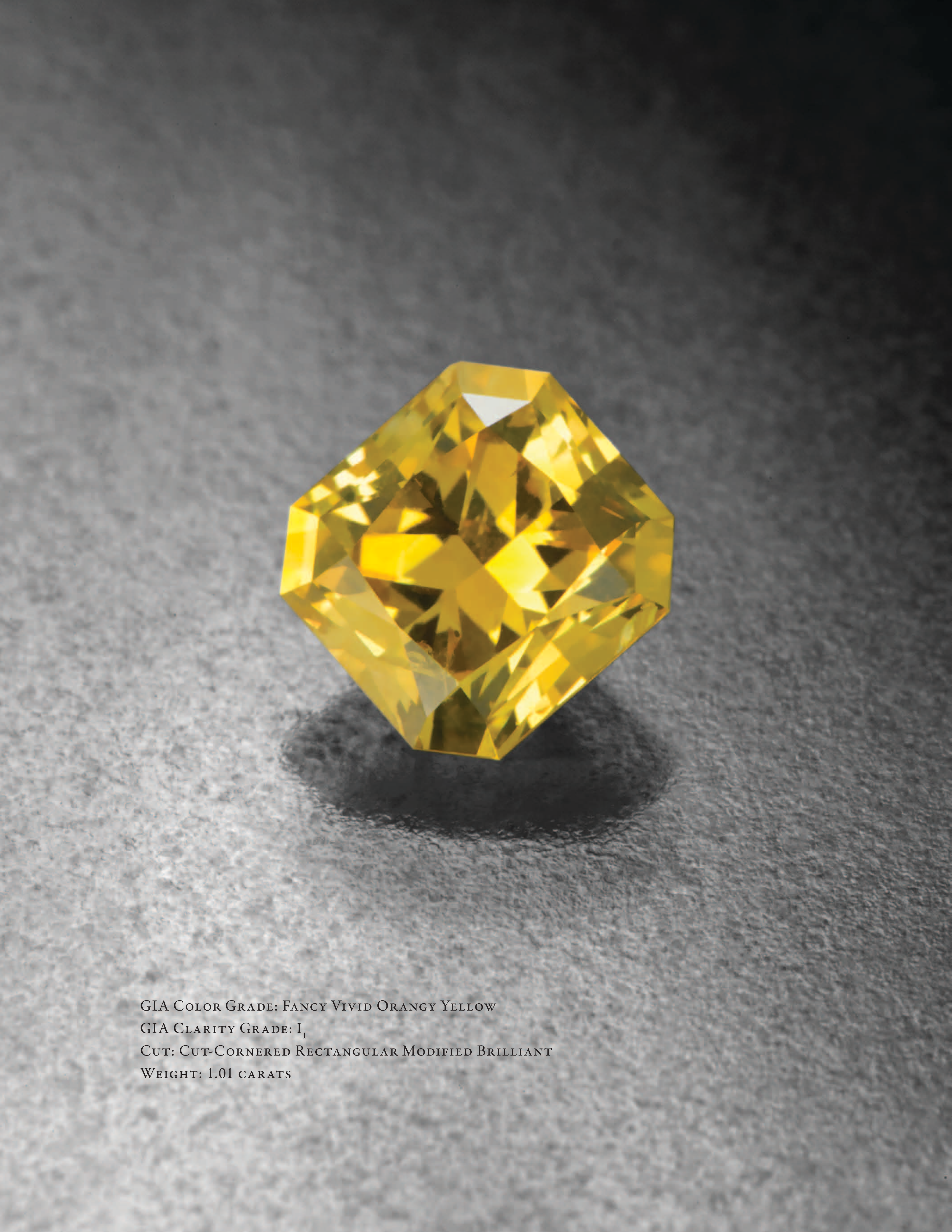
GIA Color Grade: Fancy Vivid Purplish Pink
GIA Clarity Grade: SI_1
Cut: Cut-Cornered Square Modified Brilliant
Weight: 2.17 carats

GIA Color Grade: Fancy Vivid Orange
GIA Clarity Grade: VS_1
Cut: Cut-Cornered Rectangular Modified Brilliant
Weight: 2.34 carats



GIA Color Grade: Fancy Vivid Orangy Yellow
GIA Clarity Grade: I_1
Cut: Cut-Cornered Rectangular Modified Brilliant
Weight: 1.01 carats

GIA Color Grade: Fancy Vivid Blue
GIA Clarity Grade: VS_1
Cut: Cut-Cornered Rectangular Modified Brilliant
Weight: 2.13 carats

GIA Color Grade: Fancy Vivid Blue-Green
GIA Clarity Grade: I_1
Cut: Cut-Cornered Square Modified Brilliant
Weight: 1.02 carats

Introduction

Education and drive are the principal ingredients behind the formation of a great collection. This is true whether the objects are paintings, books, drawings, or gems. It is also true that self-enjoyment in pursuit of the objects, and the desire to share their beauty with the world, also play a significant role. But those who seek out masterpieces for their collection are driven by a unique passion—one that few can fully comprehend.

The passion evident behind the creation of the Olympia Diamond Collection has particular resonance upon seeing the five spectacular colored diamond selections that make up the ensemble. At first this may seem like a small number, but upon further reflection, it becomes clear that the interest is to astonish through the simple observation and contemplation of this handful of magnificent diamonds.

Over the years there have been many important colored diamond collections, which have gradually brought colored diamonds to the public's attention. The appreciation and awareness of colored diamonds encountered today was borne of these first diamond groupings. By highlighting the range of colors in which diamonds occur, collections such as the Rainbow Collection, the Aurora Collection, and the Gumuchian Collection evoked the wonder experienced when pondering the beauty that nature creates. Far-reaching collections as these inspired the owner of the Olympia Diamond Collection to embark on a new direction: one that concentrates our awareness and knowledge about colored diamonds.

At first the concept seems simple: five diamonds, each of a different color. However, the intricacy behind the concept for this collection becomes clear when studying these diamonds for this GIA Monograph. For anyone to witness such a range of diamonds—blue, orange, purplish pink, blue-green, and orangy yellow—is unique, like catching a glimpse of the perfect rainbow before the light fades. But to begin to understand all they represent in terms of rarity and scientific complexity make the collection immense, not small.

The collection takes its name from the ancient city of Olympia, that served as the seat for the first Olympic games in 776 B.C. The games were represented by the best athletes, champions who stood above all others. Similarly, this collection is

These five diamonds not only display attractive colors, but they all exhibit vivid colors.

represented by a diversity of hue and beauty among diamonds, which stand as champions for their unique properties and colors. It is also fitting to note that, like the competitors in the modern-day Olympics, the diamonds in this collection come from various locations. With origins from Africa (the orangy yellow, orange, and blue), Australia (the purplish pink), and Brazil (the blue-green), these diamonds represent classic regions associated with diamond production.

The Olympia Diamond Collection was displayed at the American Museum of Natural History in New York City from September 2009 and its stay was extended in 2010. With an estimated 4 million visitors a year, this was a unique opportunity for the viewing public to experience these exceptional gems. To view diamonds like those in the Olympia Collection is rare, but to be able to document and understand the alluring and magical role they play in the world of gems and jewelry is equally unique.

Left: Temple of Olympian Zeus. The diamonds in the Olympia Collection hail from key diamond producing regions of the world: Brazil, Africa, and Australia.

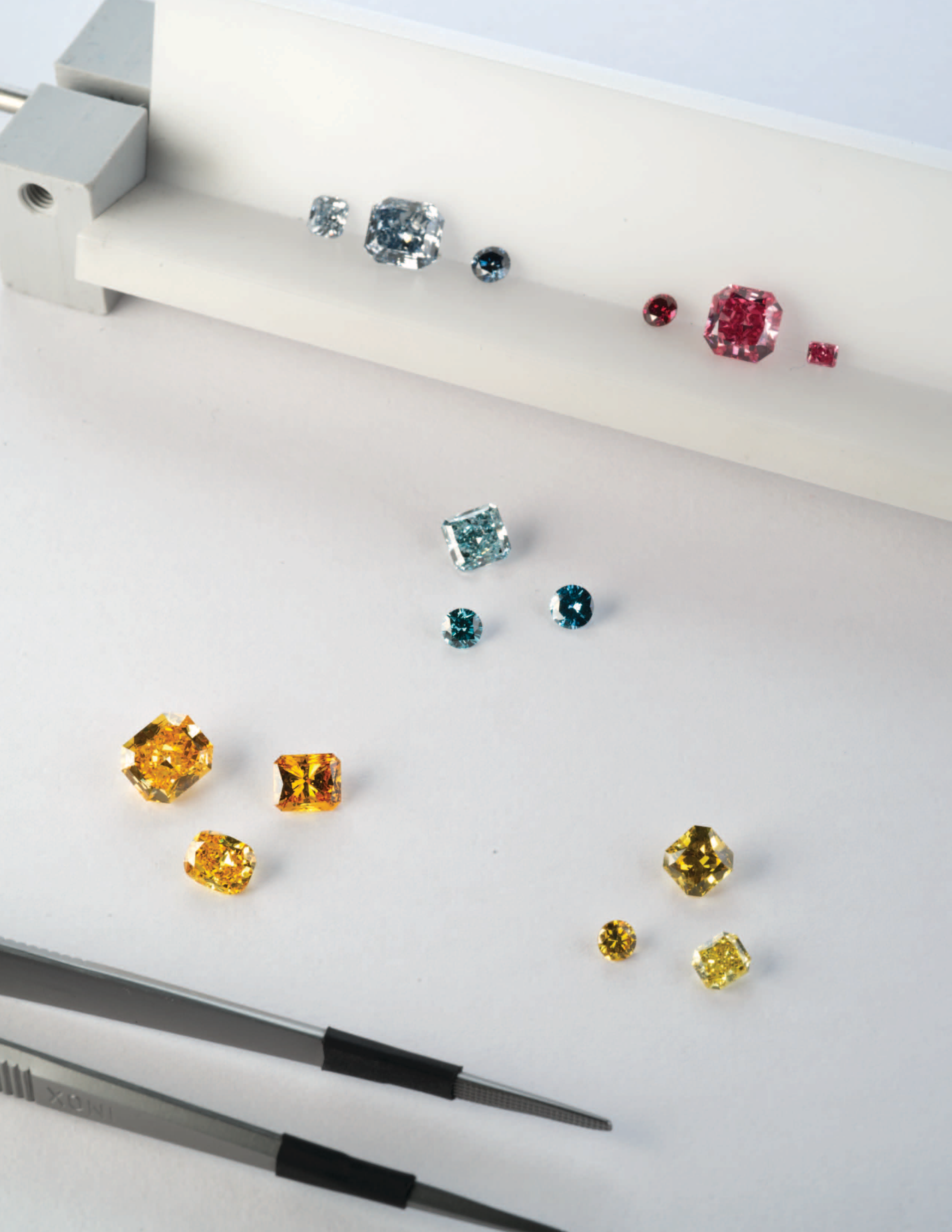
The Manufacture of the Olympia Diamonds

The five diamonds of the Olympia Collection are iconic examples of late 20th century diamond cutting innovations—square and rectangular outlines with modifications to their shape and cutting style in order to collect and intensify the face-up color appearance of diamonds.

In the late 1970s and early 1980s pioneering diamond cutters were experimenting with ways to bring "life" or scintillation seen in brilliant cut diamonds into step-cut diamonds. These experiments were often performed on diamonds at the low end of GIA's D-to-Z scale. When these step cuts were modified with brilliant-style facets the noticeable color appearance tended to collect and intensify face-up. This allowed cutters to take diamonds with colors that were not fully appreciated and make them blossom into attractive, desirable colors. Over the ensuing years manufacturers have continued to refine the proportions and faceting styles—at times for each color—to achieve the best face-up color appearance in a diamond.

Clearly this style of cutting has been perfected for the needs of each stone in the Olympia Diamond Collection. Through the use of subtle variations in facet size, placement, and proportions, each diamond has achieved the most intensified color. All five diamonds have a modified brilliant cutting style with four pavilion mains radiating from the culet. Yet, in each instance the placement and size of the mains in relation to the shape is unique. Additional faceting on the pavilion responds to the needs of the individual stone. This shows the sensitivity applied to each diamond in order to achieve the best appearance. The blue, orange, and orangy yellow diamonds are rectangular in shape, while the purplish pink and blue-green are square. The dimensions of all five diamonds are harmonious, there being no more than 3 mm difference between them.

While each diamond's manufacture has been considered independently, the overall effect when they are seen together is one of harmony. By taking shape and extreme cutting style variations out of the equation, the Olympia Diamond Collection focuses on the unique color in each diamond.



Color Grading the Olympia Diamond Collection

For most people, color observation is an intuitive response rather than a systematic understanding of the ordering of color appearances. For the GIA Laboratory, a thorough knowledge of color appearances, and how they affect color grades and descriptions, is deemed critical when establishing the fancy-color grade of a diamond. That is because, among fancy-color diamonds, color far outweighs the other Cs (clarity, cut, and carat weight) in the marketplace.

GIA Colored Diamond Color Grading

GIA's system for color grading colored diamonds uses three descriptive attributes: hue (the aspect that permits the item to be classified as red, green, blue, violet, or anything in between), tone (the relative lightness or darkness of the color), and saturation (the relative strength or weakness of a color). The color appearance of a gem is the result of a *combination* of these three attributes. By standardizing the organization of these three attributes, we can locate the appearance of one color relative to others in color space.

For color grading, colored diamonds are placed face up in a matte-white non-fluorescent plastic tray within a controlled environment—a viewing box that eliminates visual distractions and shields external light. Standard geometry between the diamond, the light source, and the observer is used for visual assessment. The light source is positioned directly above the diamond and the observer views the diamond approximately perpendicular to the table facet. Working within these parameters, GIA graders describe a single color as being "characteristic" of the diamond as a whole. This characteristic color is the overall blend of appearances excluding obvious surface reflections, dispersion, windowing, or extinction.

GIA's terminology for colored diamonds uses a combination of color descriptions and fancy grades to locate a diamond's characteristic color in a region of color space. It includes 27 hues. Some of these 27 hue names include modifiers, such as *purplish* red. A modifier in a hue name does not denote a lack of purity in the color. A fancy grade (e.g., Fancy Intense, Fancy Deep) represents the combined effect of tone and saturation on the color of a diamond. In each instance, the color descriptions and fancy grades represent a range of appearances, rather than just a single color.

To determine a fancy diamond's color grade, GIA color graders examine the diamond against master diamonds to properly locate it within color space.

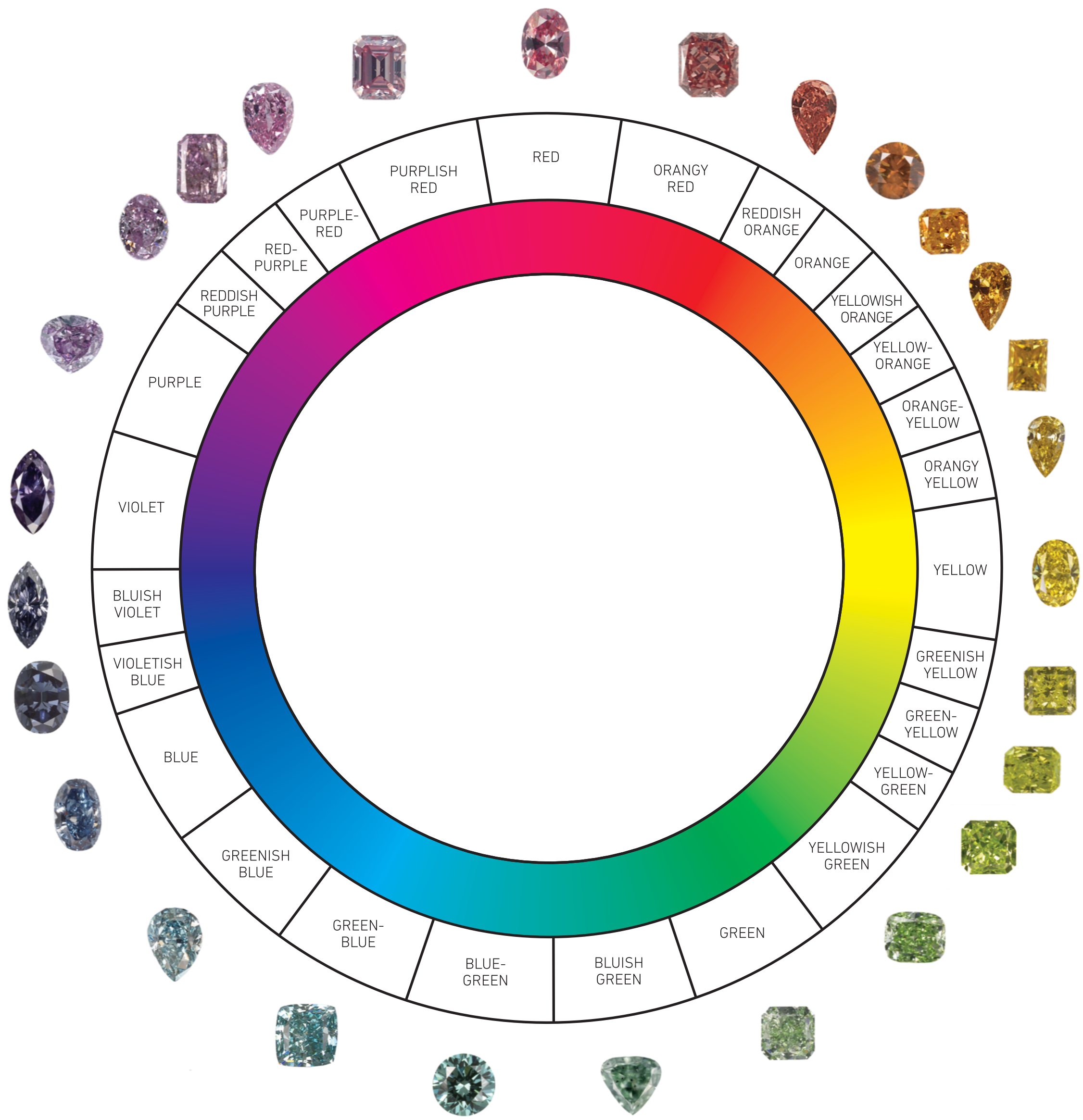
Color Grading Characteristics of the Olympia Diamond Collection

When graded by GIA each diamond in the Olympia Collection received a grade of Fancy Vivid, considered by many to be the pinnacle for diamond color. This grade represents the strongest saturation range for the given hue. Regardless of hue, diamonds with strengths of color like those in this collection are very rare.

Not only does the Olympia Collection bring together five diamonds of rare, strong color, it brings together colors that most people will see once or twice in a lifetime. To encounter a blue, orange, orangy yellow, blue-green, and purplish pink diamond is highly unusual. To encounter them in one collection is even more special—their beauty and diversity pleases the mind as well as the eye. The Olympia Diamond Collection is able to educate the observer on one of man's most pleasurable experiences: the ability to appreciate color.

Many different effects of the interaction of color are observed. If the viewer is focused on the effect of the warm colors, as seen with the orangy yellow and orange diamonds, the cool colors, like the blue and blue-green diamonds, appear to recede from prominence, and vice versa. This "push/pull" sensation has been positively exploited in the work of many artists over the years such as Joseph Albers and Hans Hoffman. Additionally, the intensifying effect complimentary colors have on each other is experienced when the blue is placed by the orange or the purplish pink by the blue-green. Indeed, the experience of the collection as a whole is that of a hue circle sampling. We are able to understand how color is a continuum, transitioning smoothly between various colors.

HUE CIRCLE OF NATURAL ORIGIN DIAMONDS



This chart shows each of the 27 hues GIA uses to describe fancy-color diamonds.

Clarity Grading and Microscopic Examination

GIA's clarity scale reflects the relative size, nature, number, relief, and position of internal and surface-reaching characteristics. Diamonds often contain a variety of inclusions that form within the host crystal, which tell a story of the diamond's formation. They also pose challenges in the manufacturing process and must be considered when determining the orientation of the rough. These many factors have been successfully addressed in the Olympia Diamond Collection as witnessed in the finished stones.

GIA's clarity scale begins with those rare diamonds in which no internal or surface-reaching features can be observed at 10× magnification (Flawless or Internally Flawless [FL/IF]). It then transitions to diamonds that are Very, Very Slightly Included (VVS), Very Slightly Included (VS), Slightly Included (SI), and Included (I).

The diamonds of the Olympia Collection illustrate a range of clarity grades from VS to I. The characteristics found in these diamonds are classic examples seen in various types of stones.

The most common clarity characteristics in the Olympia Diamond Collection were crystals and feathers. Crystals are mineral inclusions that form at the time the diamond grows in the earth. Feathers extend from the surface of the diamond and appear to "feather" into the interior. The blue diamond was of relatively high clarity receiving a grade of VS_1 based on a small included crystal.

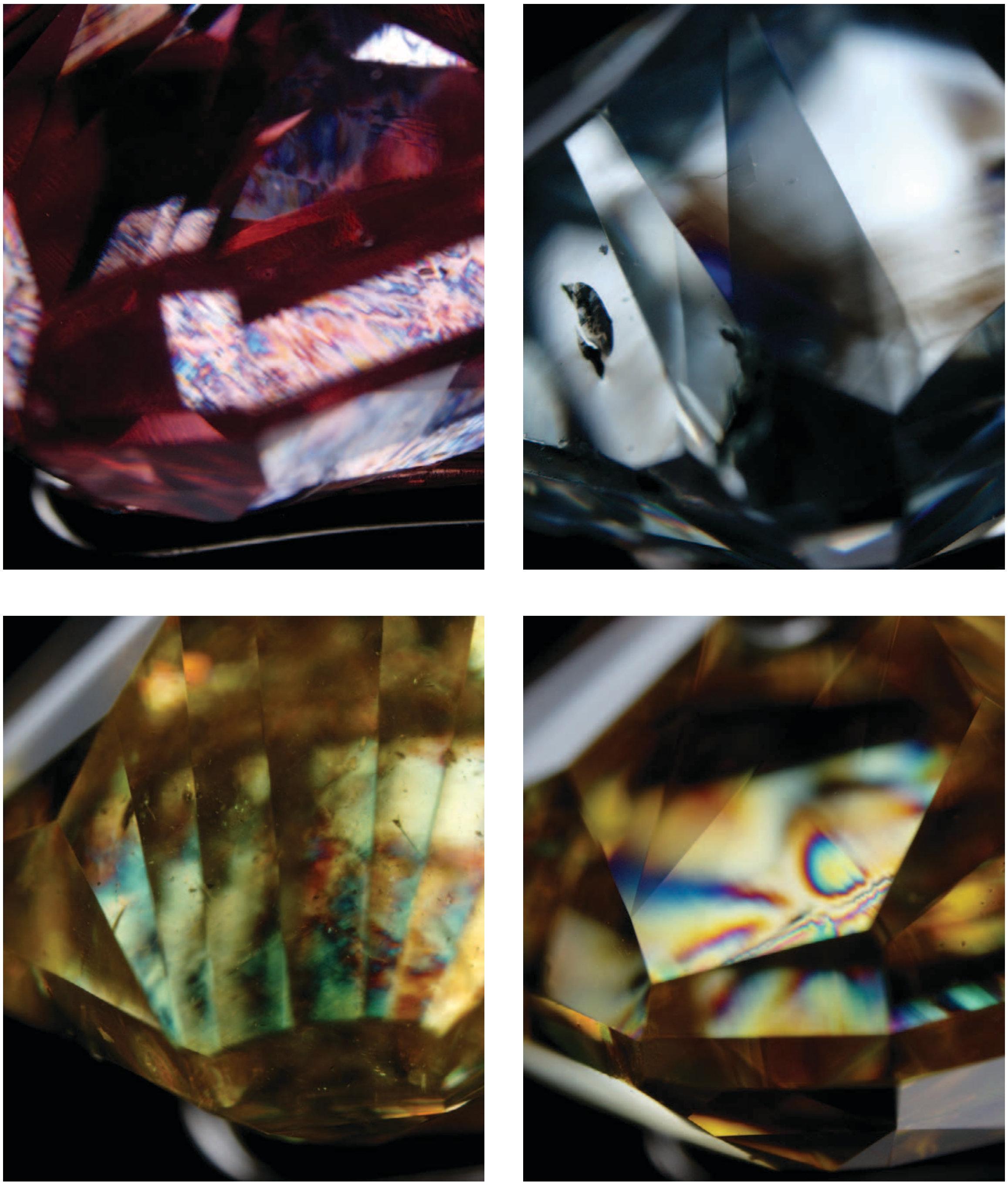
In a GIA study of pink diamonds, 56% of the type I diamonds (i.e., nitrogen-rich) were SI to I in clarity. The purplish pink diamond was graded SI_1. Its grade was based on the ease of visibility of the internal crystals and feathers.

A GIA gemologist examines the purplish pink diamond from the Olympia Collection with 10× magnification, here using a standard jeweler's loupe.

In the case of the blue-green diamond, the color comes from being close to a source of natural radiation while forming within the earth. Often this radiation imparts a shallow layer of color to the skin of the rough diamond. Cutters have to be careful not to remove too much of this layer when fashioning the faceted stone. The feathers affecting the I_1 clarity grade of this diamond are reflecting the green bodycolor.

In a study of yellow diamonds, GIA found that 20% were in the SI to I clarity range. The orangy yellow diamond is part of this group with a clarity grade of I_1 based on feathers.

The orange diamond was clarity graded as a VS_1 based on a feather. This is very high quality for an orange diamond where inclusions are common.



The high-order interference colors observed in four of the Olympia Diamonds under polarizing plates provides an indication of the strain within each diamond. Strain typically results from stresses experienced by the diamonds during their long residence time deep in the earth, and during their rapid journey up to the surface.

Strain

Diamonds form under much stress deep in the earth and are subject to additional stress during the violent volcanic eruptions that bring diamonds up from depths of about 200 km in the lithosphere. This can cause irregularities in the lattice structure. One way the gemologist can see the extent of this deformation is by observing the diamond with crossed polarizing filters. When two polarizing filters are adjusted so that their polarization directions are perpendicular to each other, all light passing through the gem will be blocked by the second filter. Some diamonds contain distortion in their lattices, and these distortions affect the way they interact with light. Between crossed polarizers, different strain patterns may be seen as arrangements of colors. These patterns typically are seen as a mosaic arrangement of bright interference colors that change as the diamond is tilted during observation.

When the purplish pink diamond was examined between crossed polarizers, this diamond displayed strong interference colors dominated by blue and orange. This observation strongly indicated that this diamond experienced extensive lattice plastic deformation, which is related to the color center causing the pink bodycolor. The blue diamond showed a grayish cross-hatched pattern typical of type II diamonds. The blue-green diamond displayed relatively weak gray interference colors. Strong interference was only observed surrounding a few crystal inclusions, due to localized dislocations. The orangy yellow and orange diamonds displayed relatively strong interference colors.

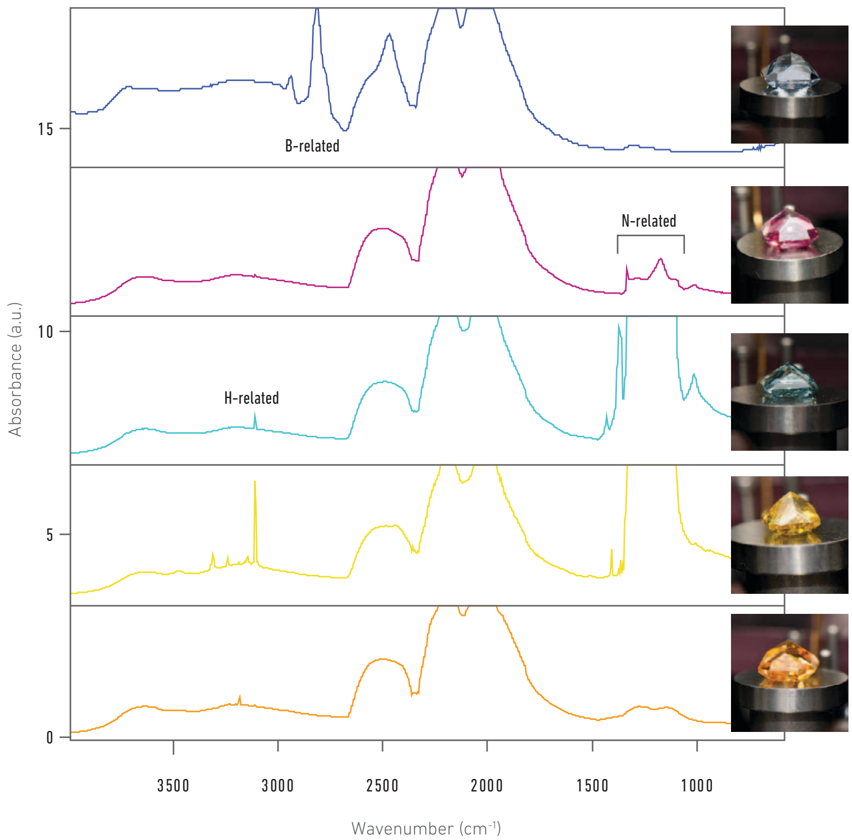
Analysis of Atomic-Level Characteristics

The human eye is highly tuned to appreciate the fine qualities of diamonds, and has an immense capability to discriminate amongst the colors of various gemstones. However, certain assessments reach beyond the perceptions of the unaided human eye. Conclusively determining the color origin in a diamond and establishing that the color is the result of a natural process, for example, requires investigation on an atomic level. The answers to these questions are contained within the crystal lattice of diamond, and GIA uses various analytical techniques to address them.

Spectroscopy plays an important role in identifying the subtle differences in diamond structure because various spectroscopic techniques provide atomic-scale information. Such techniques—including infrared, visible, and photoluminescence spectroscopy—can help determine diamond type, origin of color, and whether a diamond is natural or was created or treated in a laboratory. GIA's established observation criteria contribute to these determinations, but key spectral features obtained with analytical instrumentation (and the relationship between them) are important factors in diamond identification.

The human eye functions similarly to a spectrometer; vision has highest sensitivity at green wavelengths and has lower sensitivity towards the blue and red wavelengths. The mind registers the perceived color from a combination of this wavelength sensitivity with the actual light intensity from all wavelengths across the visible spectrum. In contrast, spectrometers measure light intensity at individual wavelengths and over a wider range of the electromagnetic spectrum; consequently, they measure far more information than is possible with human vision.

Spectroscopy is highly valuable for analytical testing because the energy of light matches the energy of a wide variety of chemical bonds. Since the energy bonding two atoms together is quite specific, spectroscopy can be used for identification if the atoms in that chemical bond have been previously identified through other means. Scientists use several types of spectroscopy because each probes a different aspect of a diamond's story. Infrared spectroscopy helps identify additional elements that are present in the diamond lattice, such as nitrogen, boron, and hydrogen. Visible absorption spectroscopy can show, in general, how these atoms



The infrared absoption spectra of the Olympia Collection show a variety of peaks indicating their individual growth histories within the earth. The blue diamond is type IIb with intense boron-related absorption at 2803 cm^{-1}. The purplish pink, blue-green, and orangy yellow diamonds are all type Ia. The purplish pink, blue-green, and orange diamonds showed a hydrogen-related peak at 3107 cm^{-1}.

interact within the crystal structure and provides a translation of the color perceived with the eye. Photoluminescence spectroscopy provides an extremely sensitive measurement of atomic configurations; this method detects dozens of spectral peaks that are inaccessible by other means, and provides eloquent testimony of a stone's history.

Diamond Type Classification

When we think of the "perfect" diamond, its crystal structure consists of carbon atoms regularly arranged throughout an evenly spaced lattice. But in reality, most natural diamonds have a number of structural anomalies and chemical substitutions, which can affect their physical properties.

To account for these differences in physical properties, scientists classify diamonds into two main "types"—I and II—based on the presence or absence of nitrogen, which can replace carbon in a diamond's structure.

Historically, diamond type was classified on the basis of ultraviolet transparency and absorption in the infrared region of the spectrum. Type I diamonds are less transparent to ultraviolet radiation than type II diamonds. This property alone was once used to separate diamonds into the two basic types. Today, with infrared spectroscopy, diamond type can be established conclusively. Most diamonds are type I and contain significant amounts of nitrogen, whereas type II diamonds do not. Within these two types, further distinctions are made. Type IIb diamonds contain boron, while type IIa diamonds have no detectable traces of nitrogen or boron within the infrared region.

The infrared absorption spectrum of the blue diamond showed the typical absorption features of a type IIb diamond, including a strong boron-related absorption at ~2803 cm^{-1}. In general type II diamonds are very rare in nature; less than 2% of the diamonds mined are this type. Those like the Fancy Vivid blue in the Olympia Collection are even rarer.

The purplish pink diamond is a type Ia diamond with a moderate nitrogen concentration. The B center (four nitrogen atoms and one vacancy) is much higher in concentration than the A center (pair of two nitrogen atoms). An unusual feature of this diamond was that no platelet peak (1370–1360 cm^{-1}) was observed. The platelet peak commonly occurs in natural type Ia diamonds.

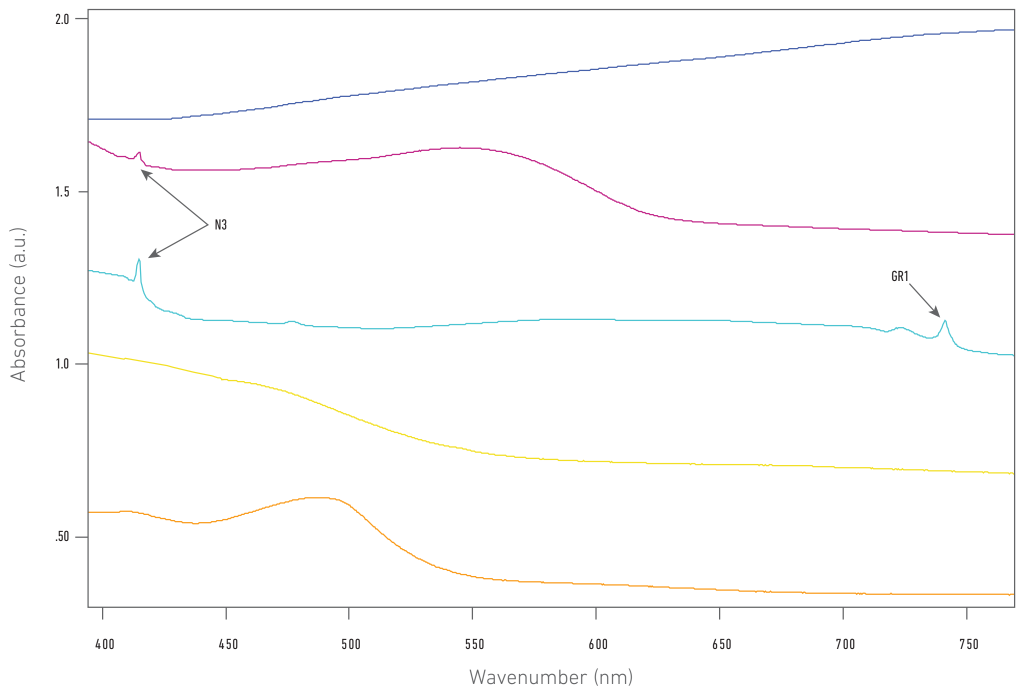
The blue-green diamond is type Ia with very strong absorption related to nitrogen impurities; in fact, these nitrogen-related peaks are saturated in the region of 1330–1100 cm^{-1}. These features are common for type Ia diamonds and usually referred to as "cape" stones in the diamond trade. It is important to note that the optical centers H1b or H1c were *not recorded* in this diamond in the near infrared region. These two optical centers are usually introduced in artificially irradiated diamonds with greenish yellow or yellow colorations and the lack of these centers provides additional evidence of the natural origin of the color in this diamond.

The orangy yellow diamond is a type Ia diamond with high concentrations of nitrogen that was predominantly in the A form. An important feature in the infrared spectrum is a weak absorption at 1344 cm^{-1}, which is caused by isolated nitrogen in this diamond.

The orange type Ia diamond showed some interesting features in the infrared absorption spectrum; diamond scientists have not fully identified several of these peaks. Absorptions in the 3340–3100 cm^{-1} and 1300–1000 cm^{-1} regions cannot be assigned to any known chemical impurities in diamonds.

Color Origin of the Diamonds in the Olympia Collection

When the cause of color in colored diamonds is discussed three origins are typically cited: atomic level substitutions, submicroscopic structural anomalies in the crystal lattice, and natural irradiation. One of the most interesting aspects of the diamonds in the Olympia Collection is that they cover all these causes. Any one of these causes is intriguing but to have all present in one collection adds greatly to their fascinating story. The colors of the blue and orangy yellow diamonds are caused by the substitution of carbon atoms by boron (for blue) or nitrogen (for orangy yellow). The purplish pink and orange colors were caused by submicroscopic structural anomalies. The blue-green is caused by being near a source of natural radiation while forming in the earth over millions of years.



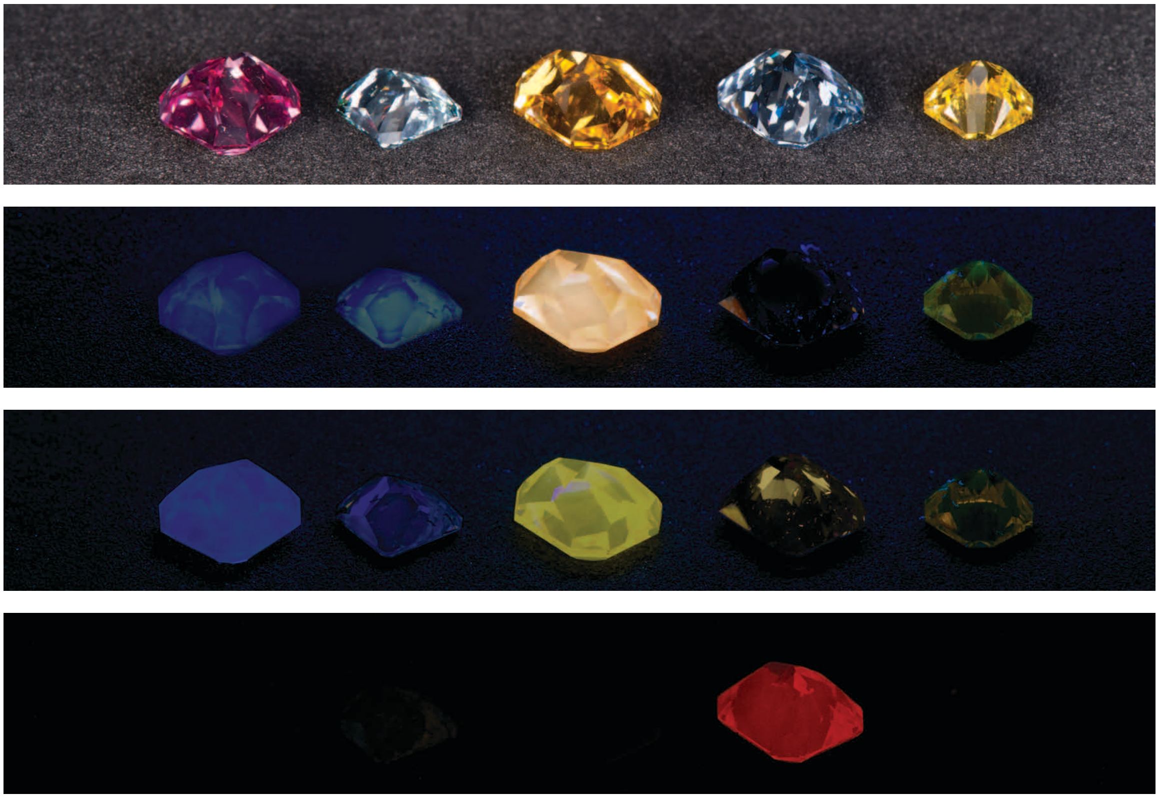
The blue diamond shows a featureless spectrum that slopes from the blue up to red wavelengths. The angle of this slope contributes to the diamond's strong blue color. The purplish pink shows a broad band centered at 550 nm that gives the diamond its pink color. The purplish pink and blue-green contain the N3 optical center which has its principal absorption at 415 nm; this peak is typical of "cape" diamonds and caused by nitrogen impurities. The GR1 at 741 nm observed in the blue-green diamond adds the greenish hue to the diamond. The orangy yellow and orange diamonds are colored by broad bands that are centered at ~440 nm and 480 nm respectively.

Visible Spectroscopy and Color Origin of the Olympia Collection

The correlation between face-up color appearance and the visible absorption spectrum of a diamond may not be perfect (since absorption spectra are primarily related to the stone's inherent bodycolor). This is because many factors contribute to the face-up color appearance of a diamond, including the bodycolor, faceting style, and size, as well as the illumination and viewing conditions. The color of the diamonds within the Olympia Collection was also characterized using ultraviolet-visible-near infrared (UV-Vis-NIR) spectroscopy.

Type IIb blue diamonds lack sharp absorption bands in their visible spectra. Rather, they exhibit gradually increasing absorption toward the red end of the spectrum. This feature is a continuation of the boron-related absorption that saturated the infrared spectrum described in the previous section. Most type IIb blue diamonds show this gentle rise toward the red end of the spectrum, but the slope of the line varies between stones and does not show a strong correlation with depth of face-up color.

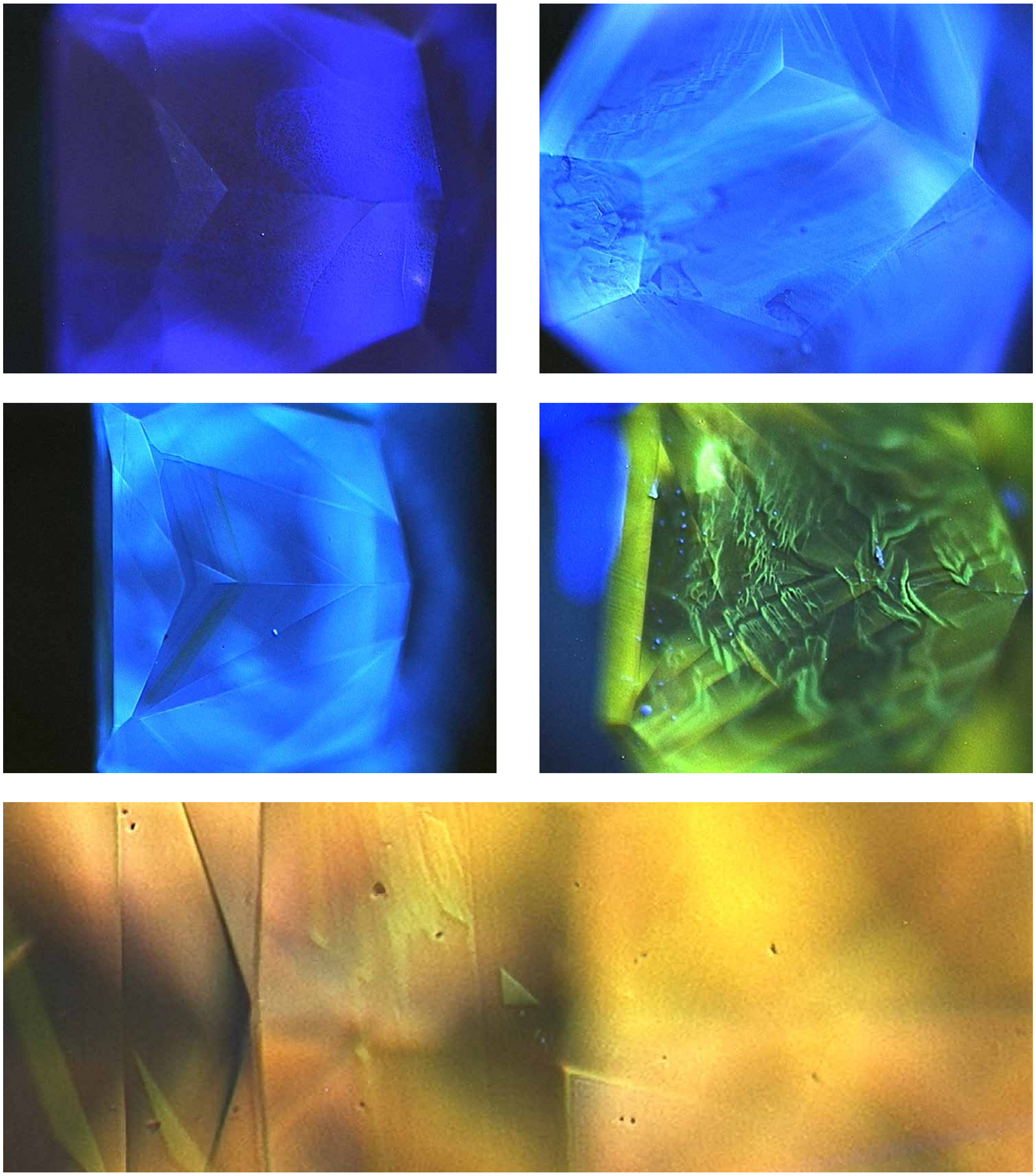
The most common cause of pink coloration in diamond is the "550 nm band," which is a very broad absorption feature centered at ~550 nm. The visible



The Olympia Collection shows a variety of reactions to ultraviolet radiation (from top to bottom: daylight, long-wave UV fluorescence, short-wave UV fluorescence, and phosphorescence). The purplish pink and blue-green diamonds show blue fluorescence caused by the N3 color center. The orange diamond has unusual fluorescence due to the "480 nm band" that causes its color. The blue diamond shows intense red phosphorescence similar to the Hope Diamond. The yellow diamond shows typical yellow fluorescence.

spectrum of the purplish pink diamond shows it contains this feature along with a weak absorption from the N3 color center (three nitrogen atoms surrounding a vacancy) within the blue region. The 550 nm band effectively blocked yellow and orange light, and is the cause of purplish pink color observed. The structural features responsible for the 550 nm band are not fully understood, but the absorption band is believed to be closely related to plastic deformation of the diamond lattice.

The visible spectrum of the blue-green diamond shows absorption from the N3 and N2 color centers within the blue region. Most natural type Ia diamonds show this combination of features which is often referred to as a "cape" spectrum. Countering this nitrogen-related absorption in the blue wavelengths is radiation-related GR1 absorption at red wavelengths. This tells us that the blue-green diamond, as it resided in the earth for billions of years, was exposed to radioactive isotopes within the host rock. While most irradiated rough diamonds have a thin veneer of color at the surface, it is rare to find a diamond exposed to sufficient amounts of penetrating radiation such that its signature absorption in the



The DiamondView™ images of the Olympia Diamond Collection showed a variety of fluorescence colors and patterns. The blue diamond had blue fluorescence and a striking mosaic pattern typical of natural type II diamonds. The purplish pink and blue-green diamonds show similar N3-related fluorescence. The orangy yellow and orange diamonds had fluorescence colors that were similar to their bodycolors.

red region is present in the polished gemstone. The combination of the absorption in the blue and red regions of the visible spectrum creates a "window" at intermediate wavelengths and is responsible for the blue-green color observed. While the spectrum itself is not conclusive about its color origin, occurrence of strong green radiation stains at the stone surface strongly indicate that this diamond was naturally irradiated.

The orangy yellow diamond derives its color from isolated nitrogen which absorbs selectively in the blue to green region of the visible spectrum. This creates the strong orangy yellow color seen by the eye. Isolated nitrogen may occur in high-pressure, high-temperature (HPHT) synthetic diamonds and in some HPHT-treated natural type Ia diamonds; its occurrence in natural diamonds such as this is a very unusual feature.

The orange diamond's visible spectrum revealed a strong absorption band centered at ~480 nm. The atomic structure of the optical center is not completely understood at this time but this band creates yellow to orange color in natural diamonds. There is no known laboratory technique to artificially introduce this optical center.

Photoluminescence Spectroscopy

Photoluminescence spectra were collected at liquid nitrogen temperature with laser excitations from the UV to near-IR region for three of the diamonds in the collection. As expected for the blue diamond, very few lattice impurity-related optical centers were observed. These features not only revealed this diamond is natural and no laboratory treatment has ever been applied, but also confirmed that this stone is very pure in chemistry.

The spectra for the purplish pink diamond showed moderately strong emissions from optical centers such as H3 (503 nm), H4 (496 nm), and the NV center (575 nm). These observations, as well as other minor emission features, confirmed that this type Ia purplish pink diamond is a natural stone. No laboratory treatment has ever been applied to this stone to improve its color appearance.

The orange diamond showed a strong emission band covering a region of 600–800 nm. This is a typical emission feature of yellow to orange diamonds colored by the 480 nm absorption band.

UV Luminescence

Fluorescence is the visible light some diamonds emit when they are exposed to ultraviolet radiation. The light is emitted only as long as the diamond is exposed to the UV source. On a GIA Diamond Grading Report, fluorescence refers to the strength, or intensity, of the diamond's reaction to long-wave UV, an essential component of daylight. In more than 95% of all fluorescing diamonds, the color exhibited is blue. In rare instances, the reaction is yellow, white, or another color. Unlike a fluorescence reaction in which the diamond emits light when exposed to the UV source, phosphorescence is extended luminescence that occurs once the UV source has been removed.

The orangy yellow, purplish pink, and blue-green diamonds each displayed a very faint to faint reaction to long-wave UV. A medium orange reaction to long-wave UV was observed in the orange diamond. It is unusual for type IIb blue diamonds to react to long-wave UV and, as expected, the blue diamond showed no reaction.

Reactions to short-wave UV were typical in each instance. The blue diamond showed very weak yellow fluorescence and red phosphorescence that is typically seen in strongly colored type IIb diamonds. The purplish pink and blue-green diamonds had weak blue reactions while the orangy yellow and orange diamonds show weak yellow and moderate yellow fluorescence.

The Diamond Trading Company (DTC) DiamondView™ imaging system produces three-dimensional representations of diamond fluorescence and phosphorescence. The images from this system tell about the growth structure of the diamond. Not only do they explain aspects of the diamond's crystal growth deep in the earth but the images confirm the diamond's natural origin. Unlike conventional fluorescent lamps used for observing long-wave and short-wave ultraviolet light, the ultraviolet source in the DiamondView™ is more intense and has a wavelength of ~225 nm, slightly higher than the absorption edge of diamond. This means that the DiamondView™ is a much higher-energy source of ultraviolet radiation than standard handheld UV lamps used for routine gemological work. Under these conditions all diamonds fluoresce. Consequently, the DiamondView™ illuminates some internal growth features, distinct fluorescence patterns, and fluorescence colors that cannot be observed using conventional UV sources.

The DiamondView™ imaging of the Fancy Vivid blue showed moderately strong blue fluorescence, but with a mosaic pattern that signifies a dislocation network typically observed in natural type II diamonds.

The purplish pink diamond showed moderately strong blue fluorescence, which is related to the N3 center and shows angular parallel bands of color that mimic the outer shape of the original crystal. These features indicate that the diamond is dominated by octahedral growth and may be considered analogous to the growth rings observed in trees. The different colored layers indicate that the chemical environment changed periodically over the crystal growth period. The fluctuating availability of nitrogen during growth is reflected by the variable concentration of N3 centers in different growth layers.

DiamondView™ imaging of the blue-green diamond showed moderately strong blue fluorescence and the variations in fluorescence intensity indicated growth zoning similar to the purplish pink diamond.

The orangy yellow diamond showed weak-to-moderate yellow fluorescence, but with some irregular banding as revealed by variations in fluorescence intensity.

The orange diamond showed strong orange fluorescence, but with some irregular regions of green fluorescence. The orange fluorescence is typically seen in diamonds that are colored by the "480 nm band," such as this stone.

Summary

The Olympia Diamond Collection, containing a modest number of five stones, is nonetheless a giant in the realm of superlative diamonds. Singly, the diamonds are each a natural masterpiece. When taken as a whole, the collection represents the rarest colors known in diamonds. As a kaleidoscope of colors when observed together, and in sizes ranging from 1.01 ct to 2.34 ct, they represent an astounding treasure.

About GIA

Established in 1931, the Gemological Institute of America is the world's foremost authority on diamonds, colored stones, and pearls. A nonprofit institute, GIA's mission is to ensure the public trust in gems and jewelry by upholding the highest standards of integrity, academics, science, and professionalism through education, research, laboratory services, and instrument development. Visit www.gia.edu

Olympia Diamond Collection