

Clarity

3

The Diamond Course INDIVIDUAL MEMBER EDITION

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Learning Evaluation Reminder

If you have not yet completed Learning Evaluation 1, please do so before continuing further with your coursework.

The DCA Diamond Course for Individual Members includes three Learning Evaluations. These are section tests and they come after Lessons 2, 8, and 14. There are also three Satisfaction Evaluations, which give you opportunities to rate and comment on the objectives, content, presentation, and service for the course.

You can find more information about Learning and Satisfaction Evaluations in the "How This Course Works" section of Lesson 1. If you have other questions or need help, please contact us. You can use this website – just click on Help.

You can also email studenthelp@diamondcouncil.org or phone 615-385-5301 / toll free 877-283-5669.

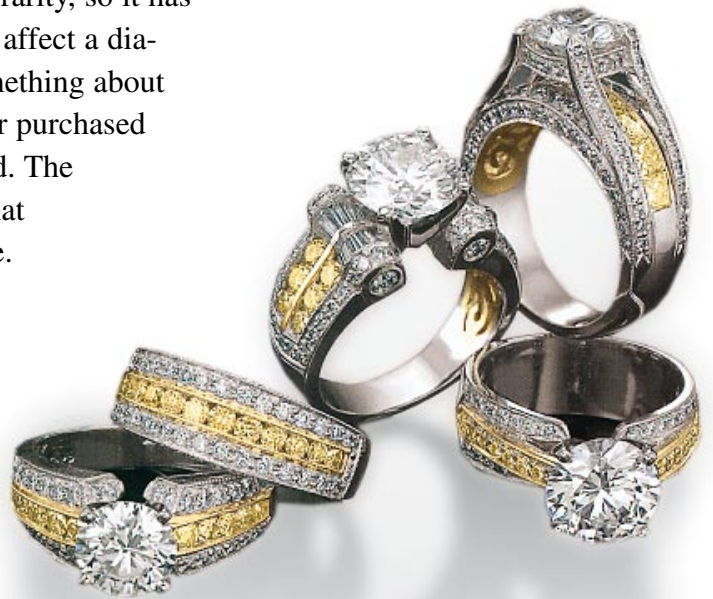
Clarity

In This Lesson:

- A Key C
- Defining Clarity
- Clarity Characteristics
- Evaluating Clarity
- Clarity Grades
- Clarity, Value, and Beauty
- Choosing the Right Clarity

A KEY C

Clarity is a key element affecting a diamond's rarity, so it has a big impact on its cost. However, clarity may not affect a diamond's beauty. You may have already learned something about clarity and clarity grades. But even if you've never purchased a diamond, you'll find clarity is easy to understand. The most important thing is understanding clarity so that you can make a purchase decision with confidence.



It's necessary to keep the relationship between clarity and beauty in perspective.

Photo courtesy JB Star.

Lesson Objectives

When you have successfully completed this lesson you will be able to:

- Define clarity in easy-to-understand terms.
- Discuss the instruments and methods used for grading clarity.
- Recognize clarity's effect on a diamond's value and beauty.
- Use diamond clarity grades to make a confident purchase decision.

Clarity characteristics result from various events in the “life” of a diamond.

DEFINING CLARITY

In Lesson 1 you learned that you can define clarity as a diamond’s freedom from blemishes and inclusions. Blemishes are surface irregularities such as scratches. On the other hand, inclusions are internal – for example, tiny crystals of other minerals. Both types of features are called clarity characteristics. Because each diamond has a unique combination of clarity characteristics, they are sometimes called identifying characteristics.

Clarity characteristics come from events in the life of the diamond. Many are byproducts of its growth within the Earth. Some can be caused during its journey to the surface. The stresses of mining, processing, and cutting may create others. (You’ll learn more about these topics in the lessons ahead.) In many cases, clarity characteristics don’t affect a diamond’s beauty. So it’s inaccurate to call clarity characteristics “imperfections” or “flaws.” They are more like the marks you often see in fine leather or other natural products.

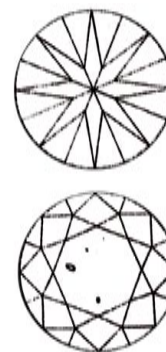
Clarity characteristics have benefits, too. They help to separate diamonds from lab created diamonds and imitations. Like a person’s features, they also make a diamond unique and identifiable.

CLARITY CHARACTERISTICS

While it is important to understand clarity characteristics, don't get so caught up in the details that you lose sight of the diamond. After all, when you're buying a diamond, the goal is to find the one that best suits your personal desires in terms of carat weight, clarity, color and cut.



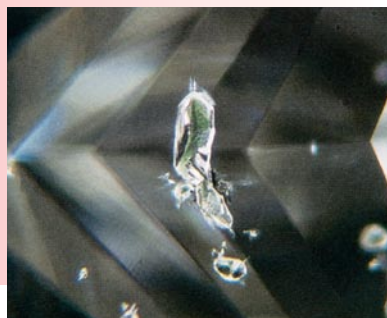
Today many diamonds are offered for sale with quality reports that identify characteristics.



Clarity characteristics make a diamond unique and identifiable. On a grading document, they are evidenced on a "plot".

Without advanced training it's hard to identify individual clarity characteristics. (If you decide to buy, sell or appraise diamonds as a business, you will want to take a grading course that teaches you to identify blemishes and inclusions, how to set a clarity grade, and gives you actual practice grading.). It's still helpful to be familiar with common characteristics and the terms that describe them. Many diamonds are now sold with quality reports that note significant characteristics.

The following lists describe clarity characteristics. Because inclusions usually have the greatest impact on the clarity grade, they're listed first. Within each category (inclusions or blemishes) characteristics are listed in alphabetical order, not by frequency or importance.

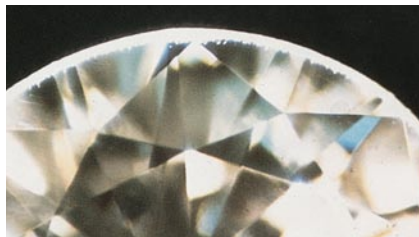


A green crystal nestled inside a diamond. Dark blotches, often called carbon spots, are the result of foreign matter getting trapped inside a diamond.

Photo courtesy Gary Roskin.

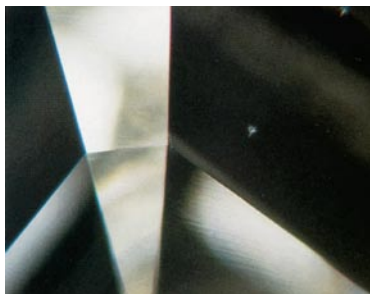
Inclusions

Bearding: Tiny hair-like fractures that extend into the diamond from the girdle. (The girdle is the diamond's the outer edge.) Bearding occurs when too much pressure is used while shaping the diamond in cutting.



Bearding

Bruise: A small crumbled spot on the diamond's surface, often with root-like fractures that extend inward. (It's classified as an inclusion because the fractures are internal.) Bruises are usually caused by accidental blows.



Bruise (tiny white mark near the center at 1:00)

Photo courtesy Gary Roskin.

Cavity: A relatively large or deep opening that penetrates the diamond from the surface. A cavity can be left when the cutting process places an included crystal at the diamond's surface, and then pulls it out.

Chip: An opening that doesn't extend very deep into the diamond. Chips vary in size, and often look curved or rounded. You normally see them near the girdle or at the junctions where facets meet. Chips are usually caused by accidental blows.



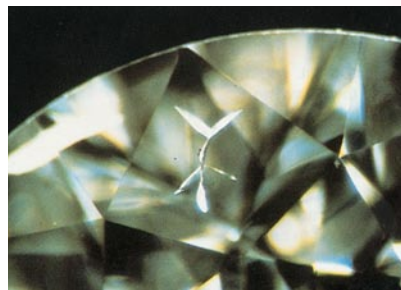
Chip

Cloud: A hazy or milky-looking area formed by a number of tiny inclusions that were caught up in the diamond crystal as it grew.



Cloud

Feather: A break inside the diamond. There are actually two kinds: **cleavage** and **fracture**. Cleavage is a break in a relatively weak direction of the diamond crystal. It often has flat look. Fracture is a break in other directions, and usually has a jagged look. The two frequently occur in combination, and the term "feather" describes their typical white, feathery appearance. Feathers can occur when a diamond is growing. They can also be caused by sharp blows. In the treatment known as **fracture filling**, feathers are filled with a glass-like substance to make them less visible. You'll learn more about this treatment in Lesson 8.



A series of feathers - an inclusion with personality!

Included Crystal: A mineral crystal that was captured within the diamond as it grew. Included crystals are sometimes angular, but they may also look rounded. Many are colorless. Others are dark or brightly colored. From a specialist's viewpoint, included crystals are among the most beautiful and fascinating diamond characteristics.



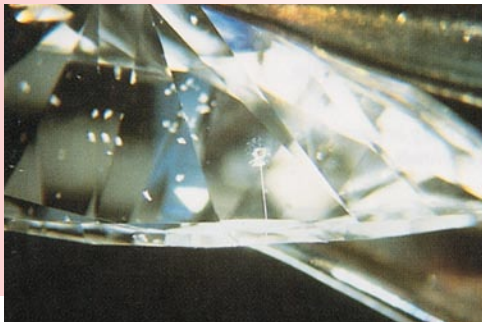
An included crystal of another mineral inside a diamond.

Internal Graining: Visible evidence of irregular growth in the diamond crystal. Graining often resembles faint lines, streaks, or ripples running through the diamond. It may also be cloudy, colored, or reflective.



Internal Graining

Knot: An included diamond crystal that reaches the surface of a polished diamond. If the smaller crystal is completely enclosed it's considered an included crystal. When it's left at the surface by cutting it becomes a knot.



Laser drill hole

Laser Drill Hole: A tiny channel burned by a laser to lighten a dark inclusion. This is another treatment you'll learn more about in Lesson 8.

Pinpoint: A very, very small included crystal. Under magnification it usually looks like a tiny white speck inside the diamond. Pinpoints may occur alone, in groups, or in strings.

Blemishes

Abrasion: Tiny nicks along the junctions where a diamond's facets meet. Abrasions can occur when loose diamonds rub against each other in a parcel, or pieces of diamond jewelry rub together during wear or in a jewelry box.

Extra Facet: A facet that's not required by the diamond's cut style. (You'll learn more about cut styles in Lesson 5.) Diamond cutters usually add extra facets to eliminate other blemishes or to correct minor errors. Extra facets don't count as blemishes if they're small, located on the pavilion (the diamond's bottom side), and aren't visible when the diamond is examined face-up (from the top side).

Natural: Part of the natural crystal surface that remains on the diamond after cutting. Naturals are usually on or near the girdle. If they're small, confined to the girdle, and don't distort the girdle, they're considered marks of cutting skill rather than blemishes.



The natural is the bright shiny area centered in the photo.

The white facet edges seen in this photo are actually severe abrasions on this old mine cut diamond.

Photo courtesy Gary Roskin.



Nick: A small notch, usually on the girdle edge or along facet junctions. It's often caused by an accidental blow.

Pit: A very small and shallow opening – like a miniature cavity. Under magnification pits often look like white dots on the diamond's surface.

Polish Lines: Tiny parallel lines, ridges, or grooves left on the diamond's surface after polishing. They may resemble scratches, but they're usually less obvious and tend to occur in groups.

Obvious polish lines and some polish marks. Notice that the lines change directions on each facet:

Photo courtesy Gary Roskin.

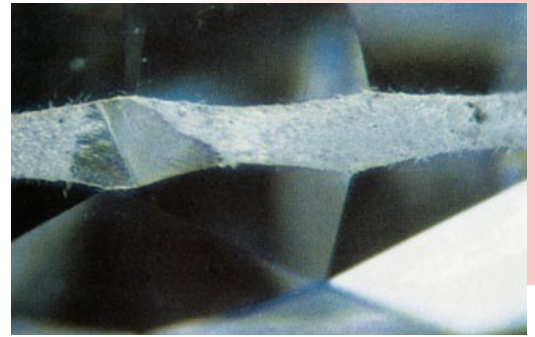


Polish Marks: Surface clouding that results from too much heat building up while the diamond is being polished. Other terms for this are burn mark and burned facet. Polish marks can also refer to an uneven surface caused by irregularities in the diamond's crystal structure or the polishing equipment.

Rough Girdle: A girdle surface that looks grainy or pitted. It's caused by poor cutting technique.

Scratch: A linear indentation that usually looks like a white line on the diamond's surface. Scratches can happen as a result of poor polishing or when diamonds rub against each other.

Surface Graining: Evidence of irregular crystal growth that's visible on the polished diamond's surface. Like internal graining, surface graining often resembles faint lines, streaks, or ripples. However, it's seen on the facets rather than inside the diamond.



When a girdle surface looks granular it is considered rough.



Inclusions called "carbon spots" are usually small feathers or transparent included crystals"

Photo courtesy Gary Roskin.

CARBON SPOTS AND BUBBLES

"Carbon spot" and "bubble" are old-time terms for diamond inclusions. Most professionals don't use them any more, but many consumers still do.

The inclusions called carbon spots are rarely carbon. They're usually small feathers or included crystals that appear dark from certain angles. Rounded crystals can look like bubbles, but unlike real bubbles they're solid (not filled with air).

EVALUATING CLARITY

The first step in evaluating clarity is finding and assessing clarity characteristics. For this, graders need magnification and an understanding of how to look at a diamond thoroughly enough to establish a grade.

Magnification

To evaluate clarity, a skilled grader examines the diamond using **10-power magnification**. Usually written “10x,” this means that dimensions appear ten times actual size. It’s also the standard under FTC guidelines.

For magnification, most professional graders use **gemological microscopes** (or **gemsscopes**). These have optical systems that produce very accurate images. Most have special lighting that makes it easy to see characteristics. Many can magnify beyond 10x. Clarity is always graded at 10x, but higher magnification lets graders examine characteristics more closely.

Many wholesale dealers and retail jewelers use **loupes** to evaluate clarity. A loupe is basically a small but powerful magnifying glass. Some models are handheld. Others have a lens that’s set into a small plastic cup. The cup is then held in the eye socket, like an old-fashioned monocle. It can also be attached to eyeglasses.



Most professional lab graders use a binocular microscope to grade clarity.

Photo courtesy GIA GEM Instruments.

The traditional magnifier for clarity grading is the loupe.



In most stores, the loupe is still the traditional magnifier.

Photos courtesy Kassoy.



Traditional loupes must have external lighting, such as a desk lamp. Some loupes are now made to fit on the end of a small flashlight, which creates built-in lighting. Good quality loupes produce distortion-free images. Many professionals use loupes exclusively, and even those who work with microscopes may use them to verify observations.

At the store, your sales associate may show you a diamond under the microscope. However, increasingly common is the use of **video viewers**. Video viewers combine a magnifying lens with a high-resolution camera to produce an enlarged image of a diamond on a computer or video monitor. Their purpose is basically the same as a gemscope's – showing clarity and cut. But it's much easier for the sales associate to show you what to look at, and, if you're shopping with a companion, you can all examine the diamond together.

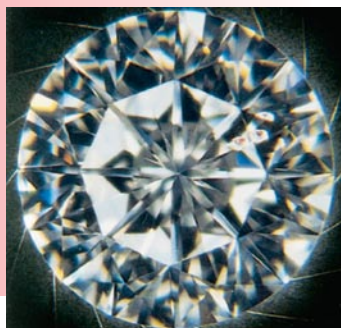


Graders first examine a diamond in the face-up position, then turn it and look through the pavilion.



At some point in the examination process, graders will hold the diamond table-to-culet and examine it as they rotate it.

Photo courtesy Gary Roskin.



It's both the size of these included crystals and their position that determine the clarity grade of this diamond.

Photo courtesy Gary Roskin.

Examination

When evaluating clarity, the grader first takes a close look at the diamond without magnification. This is to see if there are eye-visible characteristics. Next, he methodically examines the diamond under 10x, from every direction. He starts with the diamond face-up. Holding it in special tweezers, he rocks it back and forth to look through different facets. Then he turns it over and repeats the process from the pavilion (bottom) view. Finally, he holds the diamond table-to-culet (top-to-bottom point) and rotates it as he looks through the sides.

As the grader finds and examines characteristics, he considers five factors related to the diamond's appearance and durability. (Durability is the capacity to withstand wear.):

- **Size:** The larger the characteristic, the more visible it will be. Sometimes large size also means a threat to durability – for example, large feathers can weaken a stone.
- **Number:** Generally, the greater the number of characteristics, the more they'll affect the diamond's appearance.
- **Nature:** The type of characteristic matters, too. Inclusions normally count more than blemishes. Graders also tend to assume that a feather is a greater durability threat than a cloud.

- **Position:** A characteristic's location can be important. For example, an inclusion in the center of the diamond may be more noticeable than one that's close to the edge. In some positions an inclusion can be reflected in multiple facets. If the reflected images are seen when the diamond is face-up, they may affect its appearance.
- **Color:** Most characteristics are clear or white. However, they can also be dark or brightly colored, which may make them more prominent. This factor is also called relief.

If there's a gemscope or a video-imaging system in the jewelry store you visit, ask to inspect the diamond for yourself. There's no better way to take the mystery and concern out of this C.



The position of just a few small inclusions (centered in the diamond) can have a significant effect on clarity. This is called a "reflector."

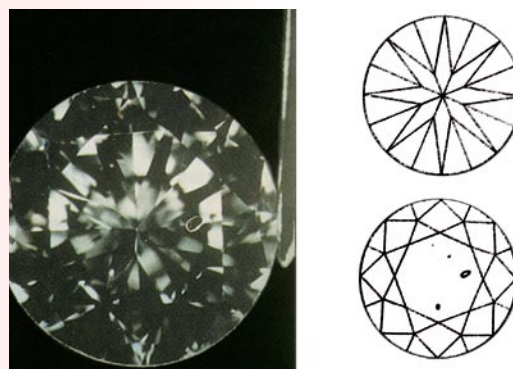
Photo courtesy Gary Roskin.

PLOTTING

As part of their work, most diamond grading laboratories and some retail jewelry store graders make a diagram or plot of the diamond's clarity characteristics. A plot is essentially a map or diagram of a diamond's inclusions and blemishes.

The plot supports the clarity grade that's assigned. It documents the diamond's condition, in case there's a question about damage that may have occurred later. Since no two diamonds are exactly alike, a plot also helps to identify a diamond.

Plots most often appear on appraisals or on quality reports issued by laboratories. These "expert maps" of the diamond's characteristics can be confusing if you're not used to them. And because they are drawn with the blunt tip of a ball-point pen, they can sometimes make the clarity of a diamond look terrible. Just remember that the plot is a diagram of where the characteristics are located. It doesn't necessarily show the effect the characteristics have on the beauty or value of the stone.



A plot of a diamond's inclusions helps identify the diamond and differentiate it from another. Inclusions that are visible through the crown (right) are plotted on the crown diagram unless they reach or are on the pavilion surface.

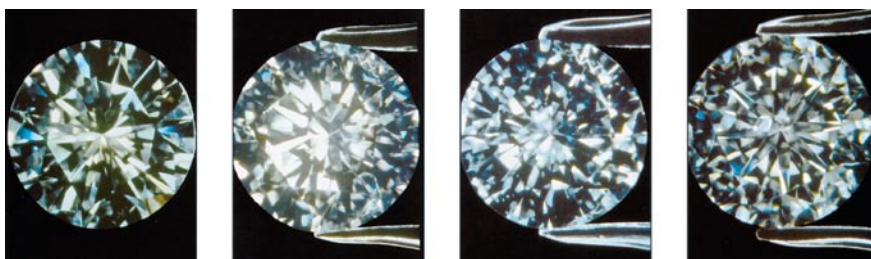
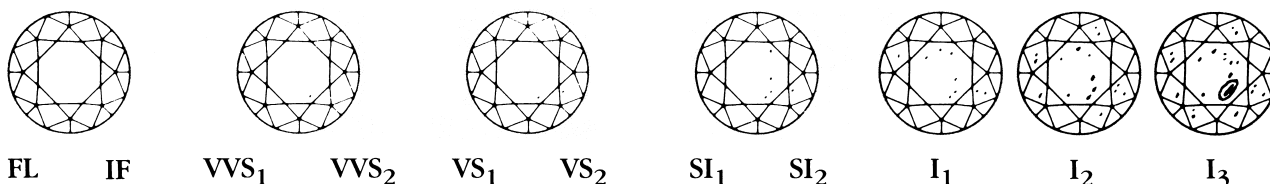
CLARITY GRADES

Once graders have found and assessed a diamond’s clarity characteristics, they assign a clarity grade that reflects visibility of the characteristics. They also consider how characteristics might affect appearance or durability. The face-up view normally counts most in setting the grade, because that’s how the diamond is seen when mounted.

There are several different grading systems. Some firms have their own systems, but most use the one that was originally developed by the Gemological Institute of America (GIA).

The **GIA Diamond Clarity Grade Scale** has six main categories. Four of them are subdivided for greater precision, and there are 11 grades in all. The following summary will help you understand those grades. (Remember that grade descriptions are based on a skilled grader working with 10x magnification and proper lighting.)

- **Flawless (abbreviated F1):** No blemishes or inclusions visible under 10x. FTC guidelines prohibit using the term “flawless” or “perfect” to describe any diamond that doesn’t fit this description.
- **Internally Flawless (IF):** No inclusions and only minor blemishes visible under 10x.
- **Very Very Slightly Included (VVS1 and VVS2):** Minute inclusions that are extremely difficult (in VVS1) or very difficult (in VVS2) to see under 10x.
- **Very Slightly Included (VS1 and VS2):** Minor inclusions that are fairly difficult (VS1) or fairly easy (VS2) to see under 10x.
- **Slightly Included (SI1 and SI2):** Noticeable inclusions that are easy (SI1) or very easy (SI2) to see under 10x. (A small percentage of SI diamonds have inclusions that can be seen without magnification. The inclusions have little or no effect on appearance. Some organizations and firms grade these diamonds SI3. GIA doesn’t recognize the SI3 grade, however.)
- **Included (I1, I2, and I3):** Significant inclusions that are usually visible (I1), easily visible (I2), or obvious (I3) without magnification. I2 inclusions may affect durability. I3 inclusions pose a definite threat.



The more effect on appearance or durability, the lower the clarity grade.

CLARITY, VALUE, AND BEAUTY

The effect clarity has on a diamond's value is based on rarity. Almost all diamonds have clarity characteristics. The less significant the characteristics, the higher the clarity grade will be. The higher the grade, the greater the rarity, and the more expensive the diamond will be.

Only about 2% of all gem quality diamonds are flawless. VVS is the highest grade normally seen in retail stores, and most "fine-quality" diamonds are VS or SI.

There's no direct
link between
clarity and beauty



The high demand for Imperfect grade diamonds prove that many customers do not feel that the inclusions in these diamonds diminish their appeal.

Photo courtesy ICdiamond.

In most cases there's no direct link between clarity and beauty. Under magnification a VS diamond may appear flawless to someone who's not an expert. SI characteristics are rarely visible without magnification. They have little or no effect on the diamond's appearance.

Most professionals would say that eye-visible inclusions hurt a diamond's visual appeal. Those that threaten durability certainly reduce the chance it will last "forever." However, the high demand for I-grade diamonds proves that many people find them attractive, cost-effective options when clarity is balanced with other value factors.

CHOOSING THE RIGHT CLARITY

Cost and appearance count when it comes to buying a diamond. But even more important are personal concerns and motivations. You should always ask yourself: What do I want in this diamond?

If you are quality-conscious, an attribute such as rarity might be most important. You might be willing to compromise on size in order to buy a better quality diamond. If you're a man choosing an engagement ring, selecting a diamond with a VVS clarity grade might tell your fiancée she is as close to perfect as someone can be.

You should always
ask yourself:
What do I want
in this diamond?

On the other hand, if you are interested in getting the largest diamond you can afford, you might want to trade a little clarity for it.

The quality you choose may depend on the type of jewelry in which the diamond is set. Most people feel high clarity is more important for diamonds in rings than for those in other types of jewelry. That's because rings are likely to receive closer inspections from family, friends, and acquaintances. Rings – especially for engagements, weddings, and anniversaries – also carry deep emotional symbolism. (In Lesson 7 you'll learn more about diamond jewelry.)

Ultimately, you want to choose the diamond that exactly suits your desires.

FTC GUIDE 23.12 Misuse of the words “flawless,” “perfect,” etc.

(a) It is unfair or deceptive to use the word “flawless” to describe any diamond that discloses flaws, cracks, inclusions, carbon spots, clouds, internal lasering, or other blemishes or imperfections of any sort when examined under a corrected magnifier at 10-power, with adequate illumination, by a person skilled in diamond grading.

(b) It is unfair or deceptive to use the word “perfect,” or any representation of similar meaning, to describe any diamond unless the diamond meets the definition of “flawless” and is not of inferior color or make.

(c) It is unfair or deceptive to use the words “flawless” or “perfect” to describe a ring or other article of jewelry having a “flawless” or “perfect” principal diamond or diamonds, and supplementary stones that are not of such quality, unless there is a disclosure that the description applies only to the principal diamond or diamonds.



Although a diamond may seem perfect to the one who receives it, the FTC does not allow use of the word except where a diamond is flawless, good color and good cut.

Photo courtesy Yehuda Diamond Co.

RECAP OF KEY POINTS

- Clarity is a diamond's freedom from blemishes and inclusions. Blemishes are external features and inclusions are internal. Clarity characteristics are caused by events in the life of the diamond. They help to separate diamonds from synthetics and imitations. They also identify individual diamonds.
- While you don't want to get caught up in the details of the diamond's clarity characteristics, you should be familiar with common characteristics.
- To evaluate a diamond's clarity a skilled grader examines it using 10x magnification – either a gemscope or a loupe. Clarity characteristics are assessed by size, number, nature, position, and color.
- The clarity grade reflects the visibility of clarity characteristics, plus any effect they might have on the diamond's beauty or durability. The face-up view is normally most important in setting the grade.
- Clarity's effect on value is based on rarity. In most cases there's no direct link between clarity and beauty.

Lesson 3 Self-Test

This lesson also includes a Self-Test that's designed to help you gauge your comprehension of the lesson material. The test is an important part of the learning process, so be sure to complete it.

When you're ready to take the test, go to the Course Materials page (the one that lists all the lessons) and click on "Take Self-Test." Make certain you select the test for this lesson.

All questions in the test are based on Lesson 3. More than one answer for a question might seem correct, but you should select the one **best** answer based on the lesson discussion.

As you take the test, you may refer to the lesson. To do this, you'll need to have the lesson loaded in a separate window of your browser.

If you feel certain about a question, try answering it without looking at the lesson. But if you're not sure, check the lesson before answering.

After you answer a question, you'll receive immediate results and feedback. You'll find out whether you answered correctly, what the correct answer was (in case you missed it), and also the page number in the lesson where the information can be found. Take time to review any material you're not completely clear on.

At the end of the test, you'll receive your overall results. Then you'll be able to continue to the next step in your coursework.

If you have questions or need help, please contact us. You can use this website – just click on "Help." You can also email studenthelp@diamondcouncil.org or phone 615-385-5301 / toll free 877-283-5669.