



CORNERSTONE

A Publication for the Accredited Gemologists Association

European Gemological Laboratory Defines SI3

by Thomas E. Tashey, Jr. & Gary A. Roskin

Over the past several years, diamond dealers have been buying and selling diamonds using the clarity grade "SI3". Even though there has been no written definition of the grade, we find that "SI3" has been used consistently to describe lower SI2 and higher I1 clarity graded diamonds. We see three possible reasons for the creation and wide use of the SI3 grade: 1.) gemological laboratories are seeing and grading more moderately included diamonds, 2.) the laboratory grading of moderately included diamonds appears to have become more subjective, drifting slightly lower, and 3.) the price difference between SI2 and I1 on published pricing guides has become significant enough to warrant an intermediate price category. In essence, the diamond industry itself has determined the need and created the "SI3" category. Without disturbing the established system, the "SI3" clarity grade works.

Background

Over the past fifteen years, we have witnessed an increase in the number of moderately included diamonds being submitted for laboratory grading (see *Gems & Gemology*, Summer 1991, Proposal to update "Slightly Imperfect", T. Tashey). Diamond graders are reluctant to place a stone into the SI2 or I1 category, since "Imperfect" (or "almost Imperfect" with SI2) has negative connotations.

This has created a "drifting" in the SI category, changing the boundaries between SI1, SI2, and I1 significantly from where they were fifteen years ago.

In fact, GIA has recently been addressing this issue (see IGS Proceedings, '91, "Clarity Grading Diamonds," Schwartz, and Alumni Association In Focus, Fall '91, "Eye-Visible Inclusions and Clarity Grading," Lucey, Schwartz and Roskin). According to GIA, the grading of moderately included diamonds, especially in larger sizes and fancy shapes, should be much more subjective than the original teaching rules. With these factors in mind, it has therefore become very important for us to expand our thinking; 1) with regards to the actual clarity grading of moderately included

stones, and 2) with regards to the addition of the SI3 clarity grade.

Grading SI3

Put simplistically and more appropriately, diamonds graded as SI3 are those which would have normally been graded as a very low SI2, almost I1. (SI3 is not, as some would hope, a good looking I1.) To help even-out the grade ranges so SI3 doesn't lessen the importance of SI2, we have tightened up the SI1 range just slightly. What we would have graded as a very low SI1, is

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Certified Master Gemologist

by Larry Phillips

The two proposed purposes of the CMG title are:

To recognize and certify advanced gemological knowledge

To promote and recognize outstanding individual contributions to gemological knowledge and professionalism.

Those polled unanimously agreed that the CMG title should deal only with pure gemology - not appraisal issues. The AGA would prepare and administer only one exam, which could be taken in Tucson, regionally, or as a proctored correspondence exam. It would include an open-book practical

and a written section. Recertification would be required every five years.

There will be a CMG Education and Review Board. The purpose of the Board is to:

- Review applications
- Assign CMG credit to various activities
- Prepare, administer and grade examinations
- Make changes in the basic program structure as deemed appropriate and necessary

The following six proposed qualification requirements could be met by the candidate in any order.

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President's Message

THE AGA WANTS YOU

by Cortney Balzan



We are now taking nominations for VIP's (very important positions). Our Board of Directors (officers) and Board of Governors (regional representatives). These elected positions are your opportunity to "make a difference". Board members work together to evaluate and direct our mission: gemological education, research, and the development of professional standards of practice, benefiting our profession and upholding the public trust.

THE RESPONSIBILITY IS GREAT!

In the AGA the officers manage the day-to-day business of the association and administer the progress of our mission and specific goals. The governors are the regional representatives to the board which oversees committees and internal operations while maintaining our vision for the future.

Officers and governors work on the board together to ensure the ongoing success and growth of the AGA.

HOW ABOUT YOU?

As a member of the board, you can further your vision for the AGA and the gemological profession. You can support the activities of successful programs and committees and promote those issues that seem relevant to you. Ethics, science, technology, business resources, standards of professional practice and education all are affected by your participation. What's your vision of our future?

If you or a fellow member you know wish to run for Office or Board of Governors, please contact James Jolliff, Chair of the Nominating Committee. His phone number is 301-261-8270 or write to P.O.Box 6558, Annapolis, MD 21401-0558.

Farwell and Hello!

Farwell to Jelks Cabaniss, Jr. who is retiring from the gemological profession.

Hello to the following new members of the AGA:

Thomas Barkre, *Tubaz, AZ (Assoc.)*

David Bogess, *Irvine, CA*

Neola Caveny, *Pasadena, CA*

Susan Clark, *Vancouver, BC*

Kim Hammer, *Winston Salem, NC*

William Harper, *Charlston, WV*

David Harris, *San Francisco, CA (Assoc.)*

Charles Helm, *Charlotte, NC*

Barbara Jones, *Rochester, NY (Assoc.)*

Gregory Kimball, *South Miami, FL*

Abigail Lee Mayes, *Los Angeles, CA*

Donna McWhinney, *Marina Del Rey, CA*

Andrew Riber, *Aurora, CO*

J. Marlene White, *Sacramento, CA*

Michael Wikstrom, *Sioux Center, IA*

Monica Yeung, *Carlsbad, CA (Assoc.)*

Kawaljit K. Singh, *Spring Valley, NY (Supplier)*

Weight Estimation for Colored Stones

by Richard Homer

Most of the weight estimation formulae we've seen in the past have been derived by mathematicians using the published proportions and angles utilized in the cutting of diamonds. Sure, we can adjust for different specific gravities and use these weight estimation formulae for colored stones, but, how many colored stones have you seen cut like diamonds lately? All weight estimation formulae have been based on an "ideal" cut for a given shape. This may work for diamonds but when you take into account such factors as pleochroism, cleavage, weight retention from the rough, and color tone, one begins to see that the "ideal" make for each shape and species differs. There are a lot of variables to consider in deriving weight estimation formulae for colored stones.

I have derived weight estimation formulae that are consistently accurate within the appraisal industry's standard of +/- 10%... if used properly. There are two considerations which must be taken into account in order for the enclosed formulae to work.

Firstly, the weight estimation formulae for those shapes having a length to width ratio were derived for gems cut with the aesthetically appealing proportions of 1-1/2 to 1, to 2 to 1. The accuracy of the formulae decreases as the length to width ratio deviates from these proportions. So, for example, you should not use the formulae for long, thin rectangles or short, wide keystone shapes. A comprehensive text is underway to accommodate many other cuts and various length to width ratios.

THE BULGE FACTOR

Secondly, because the formulae are derived for "ideal" makes, proper judgement of the bulge factor seen in native makes is very important. In order to accurately estimate bulge

factors, we need a set of comparison stones just like we need diamond masters to accurately perceive a diamond's body color. Fortunately, we can do this at a fraction of the cost of a master color grading set and we can do it ourselves. Here's how!

Bulge masters can be of any inexpensive material... synthetics, glass, quartz, whatever. Pay attention to the face-up and profile proportions. We want to find stones whose only deviation from the ideal is the bulge factor, so, face-up the gems should have the proper appearance. If it is a hexagonal, it should be equi-dimensional, not lopsided. If an oval, the

face-up appearance should be that of a proper oval... no high shoulders of flat belly, for example.

If the face-up proportions look good, then, look at the profile and make note of the crown height to pavilion depth relationship. Acceptable profile proportions are those in which the crown height is no less than 1/4 and no more than 1/3 of the total depth. Similarly, pavilion depth should be no less than 2/3 and no more than 3/4 of the total depth.

So, now let's assume that you have found an 8.65 Ct. Quartz for your square cut master and it's measurements are 12.0 x 12.0 x 8.0 mm. What

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NOTES AND REPORTS

Congratulations to Paul Downing for his exceptional book on Opal (a must for your gemological library) and for his recent awards (not just one but two!) in the AGTA Cutting Edge Competition. In Division I, Opal, Paul took first place; in Division II, Pairs and Suites, Paul again took first place.

CERTIFIED GEM LABORATORY COMMITTEE NEWS

Diamond Grading Project- Everyone Welcome

A new project has been proposed, to be operated in conjunction with the Standards Committee. CGI's have been asked to use their diamond master sets to color and clarity grade selected loose diamonds, for which prior grading information has been ascertained from GIA's Gem Trade Laboratory. The project would be designed to provide blind and anonymous grading data. The purpose would be to help AGA determine the extent of any differences in diamond color and clarity grading, and any discernible parameters of such differences, between professional independent gem graders and those graders employed by GTL.

Any AGA member having diamond masters who wishes to participate in this project is invited to call Anne Hawken at 512/328-9411.

SOFTWARE REVIEW COMMITTEE REPORT

Along with our regular quarterly software reviews published in *Jewelers Circular-Keystone* we are excited about our newest project, **Ask Mr. Software**. **Ask Mr. Software** will be launched at an AGA booth at the NorthEast Jewelry show this Labor Day weekend.

A special software program has been designed to help members of the jewelry industry match their needs with available industry software. We will offer this service throughout the year as well with an ad placed in (and co-sponsored by) *National Jeweler*.

You are invited to join us for this and our Software Showcase scheduled for Tucson '93. To participate call Thom Underwood at 619-291-8852.

USED EQUIPMENT FOR SALE!

Jelks Cabaniss, 703-364-1959
Gordon Keller, 505-473-0796

SI3 continued from page 1

now an SI2. Graphically this would appear as shown below.

EGL

| | | |
|-----|-----|-----|
| SI1 | SI2 | SI3 |
|-----|-----|-----|

GIA

| | |
|-----|-----|
| SI1 | SI2 |
|-----|-----|

SI grades are used to describe stones with small inclusions which are usually obvious when viewed under binocular magnification at 10x or with a 10x corrected loupe. Stones with these grades may sometimes have inclusions which are difficult to see with the unaided eye.

As you know, the size, nature, location and number of inclusions help create your first impression for assigning a clarity grade. Allowing for location and nature, we have noticed that certain sized single inclusions fall within particular clarity grades. For example, a typical SI1 sized inclusion, measures approximately .2-.4 mm, SI2 inclusions in general range in size from .3-.5 mm, and SI3 sized inclusions might measure from .4-.6 mm. Obviously, an SI3 will typically have more or larger inclusions than the SI2.

Keeping these points in mind, we have found that typical SI3 stones contain the following inclusions:

Approximately three or more inclusions (crystals or feathers) which, individually might be graded as SI2, but because of their number, would be graded SI3.

Possibly six or seven SI1 type inclusions may be graded as SI3, where only three to five of these inclusions might be graded as SI2.

Heavy inter-growth (or twinning wisps) which may appear to encompass the entire width and length of the stone.

Reflection of inclusions is important to note, as this too will affect the grade. If you have any number of SI2 inclusions, crystals, inter-growth, feathers, or any combination which reflects, this may also call for the SI3 grade.

Precedent

While suggesting that SI3 be added to the clarity grading scale, it is important to note that GIA has already made 2 additions to the original scale. In 1952, each clarity grade, except for

Flawless, was divided into two categories - VVS1-2, VS1-2, SI1-2, and I1-2.

The first addition came in the 1960s. As the industry began using lower quality stones for jewelry purposes, the GIA expanded the Imperfect range to include I3. The second addition came in the 1970s, when Flawless diamonds were priced much higher than VVS1 goods. Flawless diamonds varied widely from one stone to another, as polish marks and blemishes were literally ignored.

To justify the price differences, and to tighten this wide Flawless range, the Internally Flawless grade was developed. This gave Flawless a more appropriate position, with I.F. becoming the intermediate grade and value between Flawless and VVS1.

With the precedent of I3 and I.F., adding "SI3" is the next logical step, adapting the system once again to what we are seeing in the market today. What we have accomplished at EGL is to take what the trade has been using and meld it into the already established grading system without creating new standards or rules. What we hope to accomplish, as the original system has done so far, is to give all of us a better way to communicate the quality (and hence, the price) of a diamond.

In Closing

We wish to emphasize that we are not trying to break from tradition. As GIA has done in the past, we are merely trying to enhance the clarity grading scale we have used since the 50's to effectively deal with the problems we are facing in the 90s. Just as we needed I3 and Internally Flawless, the trade, and now the EGL Los Angeles laboratory, feel that SI3 is the next logical addition into our diamond grading scale.

WEIGHT continued from page 3

is the bulge factor?

$$\text{Bulge Factor} = \frac{\text{Ct. Wt.} \times \text{Av. Length}}{(\text{Depth} \times \text{S.G.} \times .00225)}$$

In this example the bulge factor for this master equals 1.255 or 25%.

Remember, when you add 25% to a multiplication formula it is the same as multiplying by 1.25.

Now you have an actual sample of

CMG continued from page 1

The candidate must have a G.G., F.G.A., or equivalent diploma.

The candidate must own or have access to an AGA Certified Laboratory.

The candidate must own or have access to an AGA Certified Library. A short list of basic gemological texts or alternates where they exist.

The candidate must take the Munsell/Farnsworth vision test. Normal vision is not necessary.

The candidate must complete the AGA Advanced Gemological Seminar and Exam.

The candidate must demonstrate on going educational or research efforts outside of AGA and/or individual contributions to gemological knowledge and professionalism. This will be designed to be a flexible requirement. One that the candidate can meet through efforts that reflect their own individual talents and interests.

All of the above is an abbreviation of the full proposal to be submitted to the AGA board for approval and is not yet set in concrete. This article is written to serve as an outline for the proposed CMG program. Most of what is included is taken from the suggestions of others and I have incorporated as many as possible to form a gestalt.

I want to thank everyone who contacted me with their suggestions. I would be interested in hearing all comments, suggestions and constructive criticisms.

So far, the CMG committee consists of myself, Nancy Stacy, Eric Shelton and B. Young McQueen. Donald Palmieri has agreed to act as an advisor. Anyone else who is interested in working on the committee will be welcome, we need minds and hands.

Editor's Note: If you would like to see a complete, unedited version of this proposal contact Larry Phillips at 505-299-7999 or FAX 505-298-1281

what a 25% bulge factor looks like for a square shape. Without much effort or cost you can complete your own bulge factor master set for all stone shapes. With a little experience in their proper use, weight estimation can be consistently accurate and no longer the appraiser's bane.

Editor's Note: Richard has also provided the flyer with fancy shape weight estimation formulas included with this mailing.