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RESEARCH ARTICLE

AN INEXPENSIVE METHOD FOR DIAMOND COLOR GRADING -SHADOW METHOD

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ABSTRACT

Since olden days people have fascination for diamonds. Color is one of the important character in assessing the diamond value. Many of color distinctions are so subtle that they are invisible to the untrained eye; however, these distinctions make a very big difference in diamond quality and price. For grading the diamond color there are several methods available in the market have been using master set method. The master set method is expensive and time consuming. Training takes at least one week and difficult to learn. Without master set they can't judge the gemstone. Hence, a new method -"Shadow Method" is proposed. This method is inexpensive easy to learn and requires less time. D to G color diamonds can be graded by observing smoky white shadow in between girdle and culet. If less than 30% it is come under D color diamond, 31-50% for E color diamond, 51-70% for F color diamond and 71-90% for G color diamonds.

INTRODUCTION

Since the ancient times people have been purchasing for gemstones. Among the various gemstones diamond has a prominent place in the human society. Diamonds are using not only for ornamental purpose but also achieving a fortune. During 2014-2015 India exported polished diamonds worth of $23.2 billion and rough diamonds $1.42 billion.

Our country also imported polished diamond to a tune of $6.92 billion and rough $16.8 billion. Diamond occurrences are reported from Panna diamonds in Madhya Pradesh, Wajrakarur in Anantapur, Raichur kimberlite field, Part of which is found in Mahabubnagar and Kurnool and Narayanpet kimberlite field in Mahabubnagar, recently occurring are reported from Nalgonda in Telangana state. Panna producing major diamond production in India.

World-renowned diamonds like Koh-I-Noor, Great Moghal, Orlap, Hope, Dariya e nor, Shah and Golconda had been found in the Krishna river gravel deposits. One can get the price of the gemstone from the Rapaport diamond report.[1]

Diamond color grading

Color is one of the important character in assessing the diamond value. For grading the diamond color there are several methods available in the market have been using master set method. Among these most of the world premier Institutions like GIA (Gemmological Institute of America), IGI (International Gemmological Institute),GII(Gemmological Institute of India), AGS (American Gem Society) and HRD (the Diamond High Council (Hoge Raad voor)). Several methods like Master sets, Sarin technologies of colibri and Colorimeter. Diamond color is graded according to the GIA grading scale-Master set method.[2]

GIA's D to Z diamond color-grading system (figure 1) measures the degree of colorlessness by comparing a stone under controlled lighting and precise viewing conditions to masterstones, stones of established.

The scale begins with the letter D, representing colorless, and continues, with increasing presence of color, to the letter Z. D-Pure White, E- Exceptional white, F -Excellent white, G - Good white, H-White, I-Slightly tinted white, J-Slightly tinted white/ commercial white, K-Tinted white, L-Tinted white/needs yellow setting to look its best, M-Slightly yellowish, N- Slightly yellowish/Tinted, O-R Yellowish/Tinted colour and S-Z Yellow/Tinted.

The grading system started at D because before GIA universalized the D-to-Z Color Grading Scale, a variety of other systems were used loosely from A, B, and C (used

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without clear definition), to Arabic (0, 1, 2, 3) and Roman (I, II, III) numbers, to descriptive terms like "gem blue" or "blue white," which are notorious for misinterpretation. So the creators of the GIA Color Scale wanted to start fresh, without any association with earlier systems. Thus the GIA scale starts at the letter D. Very few people still cling to other grading systems, and no other system has the clarity and universal acceptance of the GIA scale.[2]

Many of these color distinctions are so subtle that they are invisible to the untrained eye; however, these distinctions make a very big difference in diamond quality and price.

Figure 1

Source[4]

However, the method has been widely using, it has some disadvantages.

1. It is an expensive method.
2. It takes considerable time to assess the color of diamond.
3. The training takes at least one week, even then not perfect.
4. In comparative study method it is difficult to learn, because the master set size stone either big or small with comparative stone.
5. Without master set they can't judge the stone.

Hence we proposed a new method-"Shadow Method" which is inexpensive and takes little time for grading requires and learning. This shadow method is useful for Round Brilliant Cut diamonds only. Of course, 90-95% of the diamonds selling in the market are only this type.

METHODOLOGY AND MATERIALS

To operate the shadow method one needs the following instruments/materials.
White lamp
10 X loupe
White tray
Shade card
Salvet
Tweezer

Procedure - The process of the operation of shadow method is given below

- To be graded, diamonds must be loose stone only
- Take one tray with white sheet diamond are placed table down on that sheet
- With naked eye we observe whether the diamond have a white or tinted color if the diamond is white means it is come under D to J grading if the diamond have a tinted or more color it is come under k to Z
- We will use the white light and take the distance six inches from light
- We will take D to J diamonds under shade card we observe with naked eye whether the diamond have a color or white if the diamond have a color that is come under I to J if the diamond have a white color it is come under D to G
- In shade card D to G color diamonds observed with 10X loupe between girdle and culet the smoky white shadow percentage observed above the girdle

RESULTS AND DISCUSSION

Using the proposed shadow method smoky white shadow percentage observed above the girdle is explained below: (figure 2)

- D color diamonds- smoky white shadow above the girdle is less than 30%, the remaining is transparent and colorless. (figure 3)
- E color diamonds- smoky white shadow above the girdle in between 31-50%, the remaining is transparent and colorless. (figure 4)
- F color diamonds- smoky white shadow above the girdle in between 51-70%, the remaining is transparent and colorless. (figure 5)
- G color diamonds- smoky white shadow above the girdle in between 71-90%, the remaining is transparent and colorless. (figure 6)

Figure 2

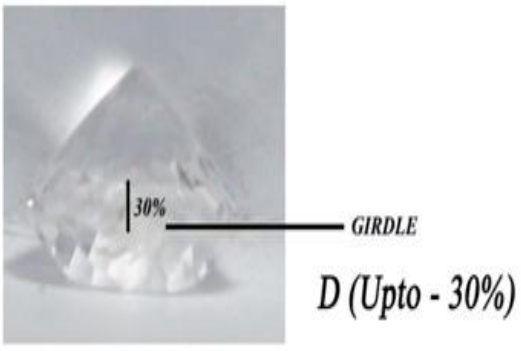

Figure 3 D color

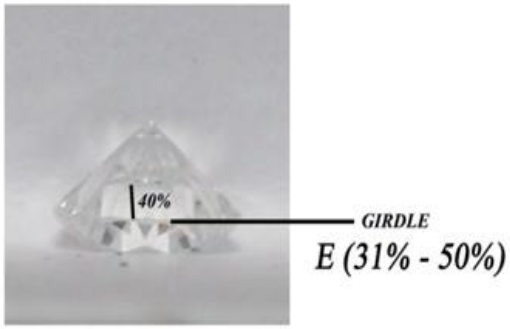

Figure 4 E color

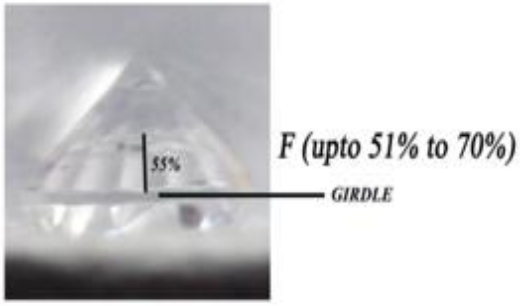

Figure 5 F color

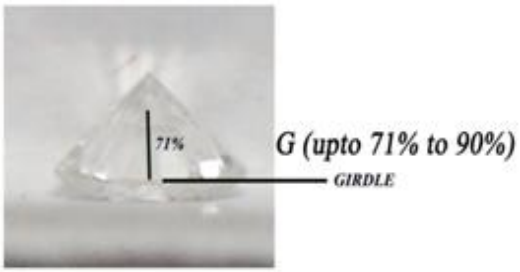

Figure 6 G color

CONCLUSION

Even though several grading methods are available in the market those methods are involved considerable expenditure and are taking considerable time for diamond color grading. The proposed shadow method is inexpensive and takes little time. Further, the method takes few hours for learning and identifying the diamonds with accuracy.

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