Standard Methods for Testing Diamond

for Hong Kong

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The Gemmological Association of Hong Kong Limited

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Contents

Foreword

Since the publication of the **Standard Methods for Testing Fei Cui (Jadeite Jade) for Hong Kong** in 2006 by the Gemmological Association of Hong Kong Limited (GAHK) and the subsequent accreditation of Fei Cui (Jadeite Jade) laboratories by the Hong Kong Accreditation Service (HKAS), there has been a strong demand for a similar Standard for diamond testing. This publication has been produced in response to that demand. The **Standard Methods for Testing Diamond for Hong Kong** sets out the standard methods required for the testing of diamonds for authenticity identification as well as grading recommended in Hong Kong.

This Standard has been prepared by a group of Hong Kong based gemmologists, academics and representatives of local gemstone and jewellery associations. To ensure that a consensus was reached as to the document's acceptability in Hong Kong, a draft version of the standard was circulated widely to interested parties in the gemstone and jewellery industry through the members of the Task Force for Gemstone Testing (established under the Accreditation Advisory Board of the HKAS). Constructive comments were received, and these have been taken into account in finalising this Standard. All such contributions are gratefully acknowledged.

All those working in the gemstone industry are encouraged to make any comments they may have on the contents of this Standard known to the GAHK at any time, so that improvements may be made to future editions.

Introduction

As published International Standards for testing of diamonds are not readily available, consumers and purchasers in Hong Kong are often confused by the different testing methods used to assess diamonds and the varying formats and contents of diamond certificates on the market. The repeatability and consistency of diamond testing results cannot be guaranteed when various laboratories use different in-house methods.

In an effort to strengthen the confidence of diamond purchasers and to enhance the credibility of diamond testing laboratories, this Standard is issued with a view to regularising the following:

(1) The definition of 'Diamond',
(2) The qualifications and experience of the personnel involved in diamond testing,
(3) The equipment and reference stones used and how a uniformly acceptable standard may be achieved through calibration and verification,
(4) The establishment of standard testing methods to ensure that diamond testing is carried out in a consistent and accurate manner, and
(5) The establishment of standard formats and contents for diamond testing certificates.

It is anticipated that the accreditation of diamond testing laboratories to ISO/IEC 17025, based on this Standard, will provide both the trade and consumers with additional assurance of the consistency and accuracy of all test results.

Scope

This document shall only be used for the testing of natural, unmounted and polished diamonds. It shall not be used for synthetic diamonds, treated diamonds or for assembled stones.

The testing methods described are to be used on Type Ia diamonds.

Note: Type Ib, Type IIa, Type IIb Diamonds may be included for authenticity identification in later versions of this standard.

Terms and Definitions

Major Physical Properties of Diamond:

Crystal Habit:	Natural mineral consisting essentially of carbon crystallised in the isometric (cubic) crystal system
Common Colour:	Colourless, Yellow, Brown, Blue, Black, Pink, Grey, Green, Red, Orange, Purple, White
Mohs'Hardness:	10
Specific Gravity:	3.52
Refractive Index:	2.417
Ultraviolet Fluorescence:	Very Strong, Strong, Medium, Faint, None

Note: The following should be noted concerning the use of the word "diamond":

1. The use of the word "diamond" alone implies that the diamond is natural.
2. The word "diamond" alone shall not be used to describe synthetic diamonds no matter which basic materials or methods are used. Products made in this way shall be referred to clearly as "synthetic diamond" and shall not be graded.

Type Ia diamond: Type Ia diamonds contain minute traces of nitrogen, the atoms aggregate within the carbon lattice.

Type Ib diamond: Type Ib diamonds contain minute traces of nitrogen occurring as isolated atoms within the carbon lattice.

Type IIa diamond: Type IIa diamonds are almost pure, containing no or negligible amounts of nitrogen.

Type IIb diamond: Type IIb diamonds contain boron. The boron occurs as isolated atoms replacing carbon atoms aggregate within the carbon lattice.

Synthetic diamond: Man made diamonds, produced in the laboratory, possessing the same composition, structure, and physical properties as their natural and inorganic mineral counterparts.

Treated diamond

Diamonds treated, other than by cutting, polishing and cleaning, to change the diamond's appearance by coating, filling, heating, irradiation, or any other physical or chemical treatments.

Note: Laser drilling

All diamonds that have been drilled with a laser shall be referred to as "Laser Drilled", and can be graded. No other treated diamonds shall be graded.

Polished diamond

Diamonds with defined cut

Assembled stone

Stones constructed of two or more parts of which at least one is diamond, synthetic diamond or treated diamond.

Diamond simulant: This term refers to any material that has the appearance of a diamond but does not possess the characteristics, atomic structure, chemical composition and/or physical properties of natural diamonds.

Dimensions

Round shape: minimum diameter, maximum diameter and depth (total height);
Fancy shape: length, width and depth (total height).

Colour

Relative absence (degree to which a diamond is colourless) or presence of colour in a diamond

Fluorescence

The degree of luminescence shown by a diamond when viewed under a long-wave ultraviolet (UV) light source with a wavelength of 365nm.

Clarity

Relative degree to which a diamond is free from internal characteristics/inclusions and external characteristics/blemishes, under 10 X magnification.

Cut

Shape and cutting style, proportion and finish of a diamond

GAHK

The Gemmological Association of Hong Kong, Limited

Qualifications Required for Recognition as GAHK Approved Diamond Grader

Personnel	**Qualification required (in Stream 1)**	**Qualification required (in Stream 2)**
Diamond Grader	1. DGA (Gem-A) holder, and 2. 1 year of post qualification experience or half year laboratory Diamond Grading experience	1. Diamond Graduate (GIA), and 2. 1 year of post qualification experience or half year laboratory Diamond Grading experience
Certified Gemmologist (Diamond)	1. FGAHK with FGA(Gem-A), 2. Diamond Diploma either GIA Diamond Diploma or Gem-A (DGA), 3. 2 years laboratory experience in Diamond Grading, and 4. Meeting the CPD requirement set by GAHK	1. FGAHK with GG (GIA), 2. 2 years laboratory experience in Diamond Grading, and 3. Meeting the CPD requirement set by GAHK

Note for abbreviations:

CPD
Continuing Professional Development
[Details can be found in the "Guidance Notes for Mandatory Continuing Professional Development (CPD) for Fei Cui & Diamond Certified Gemmologist, issued by the GAHK]

DGA (Gem-A)
Diamond Membership of Gem-A

FGA (Gem-A)
Fellowship of Gem-A

FGAHK
Fellow of the Gemmological Association of Hong Kong, Limited

Gem:-A
The Gemmological Association of Great Britain

GG
Graduate Gemologist, GIA

GIA
Gemological Institute of America