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Diamond - Testing and classification

钻石 鉴定与分类

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document is proposed by the Ministry of Natural Resources of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Jewelry and Gemstone Standardization (SAC/TC298).

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Diamond Identification and Classification

1 Scope

This document provides the classification and identification of diamonds and describes the naming rules and representation methods of diamonds.

This document applies to the identification and classification of diamonds, synthetic diamonds, and commonly treated diamonds.

2 Normative references

GB/T 16552

GB/T 16553

GB/T 16554

3 Terms and definitions

The terms and definitions defined in GB/T 16552, GB/T 16553 and GB/T 16554 and the following apply to this document.

3.1 Diamond

Natural diamondnaturaldiamond It is mainly composed of carbon atoms, with a Mohs hardness of 10 and a density of 3.52 (± 0.01) g/cm3.It has four groups of {111} moderate to complete solutions.

It is an equiaxed natural mineral crystal with a refractive index of 2.417 and a dispersion value of 0.044 and a diamond luster.

3.2 synthetic diamond; laboratory-grown diamond

Cultured Diamonds Man-made in whole or in part, with basically the same elemental composition and crystal structure as diamond, and similar physical and chemical properties Similar or identical gemstones.

Note 1.Common synthesis methods include high temperature and high pressure (HPHT) and chemical vapor deposition (CVD).

Note 2.A thin layer of material artificially grown on the surface of a diamond with basically the same elemental composition and crystal structure as diamond is also considered a synthetic diamond.

3.3 Zero phononline; ZPL

It has the characteristics of symmetry between absorption spectrum and luminescence spectrum, and the transition from the lowest vibration energy level of the ground state to the lowest energy level of the excited state.

Note. The zero phonon line is a characteristic parameter for identifying crystal defects.

3.4 Defect

The phenomenon that the arrangement of particles in a local area of the ideal crystal structure of diamond deviates from its lattice structure.

Note. Common defects in diamonds and their characteristics are shown in Appendix A.