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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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CVD diamond tools - Categorization

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is modified to adopt ISO 22180.2019 "Classification of CVD Diamond Tools".

The technical differences between this document and ISO 22180.2019 and their reasons are as follows.

---Changed the presentation of the scope of this document (see Chapter 1) to a presentation consistent with national standards.

The following editorial changes have been made to this document.

--- Added "or prepared by chemical vapor deposition" in the definition of single crystal diamond (see 3.4);

--- Added "or prepared by chemical vapor deposition" in the MCD manufacturing process description (see C.1 in Appendix C).

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the classification of CVD diamond tools.

This document applies to CVD diamond tools.

2 Normative reference documents

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

active brazingactivebrazing

The process of joining diamond to a metal matrix using brazing alloy.

Note. Brazing alloys contain so-called active elements (such as titanium) that form unsaturated carbides with the carbon atoms of diamond and in this way bind the diamond to

The stone is combined with the brazing material. This brazing is performed in a vacuum or protective gas environment.

3.2

CVD

In most cases, diamond is made at low pressure and at deposition temperatures of 600°C to 1000°C.

Note. Polycrystalline, binder-free diamond coatings, and even single crystals can be produced.

3.3

high-pressurehigh-temperaturesynthesis

A method of manufacturing diamond at a pressure of about 6GPa and a temperature of 1400 degrees C~1800 degrees C.

Note. Single crystals can be prepared by HPHT synthesis.

3.4

MCD

Cutting materials made of natural or synthetic diamond [synthesized by high temperature and high pressure (3.3) or chemical vapor deposition (3.2) prepared].

3.5

PCD

Diamond cutting materials manufactured through a two-stage high-temperature and high-pressure sintering process [HPHT synthesis (3.3)].