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

GB/T 3489-2015

Replacing GB/T 3489-1983

**Hard metals -- Metallographic determination of porosity and
uncombined carbon**

硬质合金孔隙度和非化合碳的金相测定

(English Translation)

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 3489-1983 "Determination of the porosity of cemented carbons and metallocene of non-condensed carbon".

Compared with GB/T 3489-1983, the main technical changes are as follows.

- the standard chapter has been adjusted;
- increase the normative reference documents;
- the contents of the "sample preparation" were modified;
- Modifies the part of the original standard that differs from ISO 4505. 1978.

This standard is amended by the re-drafting method using ISO 4505. 1978 "Cemented Carbide Porosity and Non-Zinc Carbon Determination".

The technical differences between this and ISO 4505. 1978 and the reasons are as follows.

- to increase the normative reference documents to meet the technical situation in China, the adjustment of the situation is reflected in Chapter 2 "normative reference file".

For ease of use, this standard has been modified as follows.

- part of the chapter to increase the number.

This standard is proposed by China Nonferrous Metals Industry Association.

This standard is owned by the National Committee for the Standardization of Nonferrous Metals (SAC/TC243).

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1 Scope

This standard specifies the metallographic method for the presence, type and distribution of carbide and non-carbonated carbides.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article. For undated references, the latest edition (including all modifications) applies to this document.

ISO 4499-1:2008 Metallographic determination of microstructure of cemented carbide - Part 1. Metallographic photographs and descriptions
(Hardmetals-Metallographic determination of microstructure-Part 1. Photomicrographs and description)

3 Instruments and equipment

3.1

Metallographic microscopes, or other suitable instruments that can be viewed and measured on the screen at the required magnification.

3.2

Equipment for preparing samples.

4 Preparation of sample

For the metallographic test of the sample grinding surface, should be no wear marks and polishing scratches, and should pay attention to avoid the peeling of particles, so as not to cause the porosity Wrong judgment. The specific steps of the preparation of the test specimen shall comply with the provisions of ISO 4499-1:2008 6.1.

Note: There are several methods for the preparation of cemented carbide metallographic tests. First, carefully grind, in order to ensure that the true organization of the exposed alloy, need to have enough Grinding amount. After grinding with a fine diamond wheel, and then in fine plastic, fine felt tray or paper tray, with the particle size gradually reduced to 1 μ m diamond grinding Paste or diamond powder for polishing.

5 Steps

5.1

The maximum size of the pores on the grinding surface is defined as the size of the pores. The existence of cracks or cracks to develop special reference standards.

5.2

less than or equal to 10µm pores, 100 times the magnification or 200 times to observe the grinding surface of the sample, to assess. Should be detected adequately Represents a certain area of the sample grinding surface, according to the magnification used, compared with the picture in Figure 1 or Figure 2. Refer to the corresponding standard chart Tablet, reported the level of porosity, denoted as A02, A04, A06 or A08.

5.3 > 10µm ~ 25µm pores, 100 times under magnification to observe the sample grinding surface, to assess. Should be tested to fully represent the sample grinding surface of a region, compared with the picture in Figure 3. Refer to the corresponding standard picture, reported the level of porosity, recorded as B02, B04, B06 or B08.

5.4

For inspection of pores larger than 25 µm, the test shall be carried out at an appropriate magnification of less than or equal to 100 times,