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

GB/T 10417-2008

Replacing GB/T 10417-1989; GB/T 10418-2002; GB/T 10419-2002; GB/T 10420-2002

**Specifications for steel-bonded tungsten carbides and
determination of its transverse rupture strength, impact
toughness and hardness**

碳化钨钢结硬质合金技术条件及其力学性能的测试方法
(English Translation)

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Foreword

This standard is GB/T 10417-1989 "Steel bonded tungsten carbide technical conditions", GB/T 10418-2002 "tungsten carbide steel Bonded carbide Determination of transverse rupture strength ", GB/T 10419-2002" Steel bonded tungsten carbide measuring the impact toughness, " GB/T 10420-2002 Amendment "Steel bonded tungsten carbide Rockwell hardness (C and A) Determination of" the.

This standard replaces GB/T 10417-1989 "Steel bonded tungsten carbide technical conditions", compared with the GB/T 10417-1989, this standard has the following major changes.

--- Standard structure according to GB/T 1.1-2000 adjustment.

--- Revision to GB/T 10418-2002 "Steel bonded tungsten carbides - Determination of transverse rupture strength", GB/T 10419-2002 "Steel bonded tungsten carbide measuring the impact toughness", GB/T 10420-2002 "Steel bonded tungsten carbide Gold Rockwell hardness (C and A) Determination of "Test Method for three Steel bonded tungsten carbides integration incorporated standard appendix, and made editorial changes.

The Standard Appendix A, Appendix B, Appendix C is a normative appendix.

This standard is proposed and managed by China Machinery Industry Federation.

Drafting of this standard. Beijing Institute of powder metallurgy limited liability company.

1 Scope

This standard specifies the tungsten carbide as the hard phase alloy for Steel bonded tungsten carbides binder phase (hereinafter referred to as "material") products Technical conditions, as well as transverse rupture strength Steel bonded tungsten carbide, impact toughness and determination of the Rockwell hardness.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 230.1 Metallic Rockwell hardness test - Part 1. Test methods (A, B, C, D, E, F, G, H, K, N, T scale) (GB/T 230.1-2004, ISO 6508-1:1999, MOD) GB/T 3808 pendulum impact testing machines (GB/T 3808-2002, ISO 148-2:1998, MOD) GB/T 3850 compact sintered metal materials and hardmetals - Determination of density (GB/T 3850-1983, eqv ISO 3369. 1975) GB/T 4309 metallurgy and material classification grades representation GB/T 10623-1989 mechanical properties of metal test terminology

3 Categories and grades

PM 3.1 tools and materials belonging to one according to GB/T 4309, specified in this standard material, according to the hard phase and binder phase Grouped, classified into three grades, the provisions in Table 1.

Table 1 Steel bonded tungsten carbide chemical composition (mass fraction)%

Trademark

Hard phase binder phase WC total C Cr Mo Ni Mn Fe F3000 50 50 ≥ 0.5 ≥ 1.0 ≥ 0.5 - - balance F3001 40 60 ≥ 0.6 ≥ 0.8 ≥ 1.7 ≥ 1.7 ≥ 0.5 margin F3002 30 70 ≥ 0.4 ≥ 0.8 ≥ 0.6 ≥ 1.6 - balance 3.2 due to manufacturing, processing and use characteristics of the material has the following four states.

- a) sintered powder metallurgy method --- made of sintered state;
- b) sintering annealed --- sintered compact after annealing treatment status;
- c) forging state --- sintered blank annealed or sintered, forged and annealed condition after treatment;
- d) quenching and tempering state --- processed and quenched and tempered material to achieve the performance required for use.

3.3

material grades using Chinese phonetic alphabet and Arabic numerals 6 symbols marking method, sign on behalf of the meaning of the provisions in

Table 2.

Table 2 Material mark symbol and on behalf of significance

Symbols digit symbol symbolic significance First a Chinese phonetic alphabet. F represents material PM the first two digits. 3 represents tools and materials the first three digits. 0 indicates steel bonded carbide