INTERNATIONAL STANDARD

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Second edition
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Hardmetals — Metallographic determination of microstructure —

Part 1: Photomicrographs and description

Métaux-durs — Détermination métallographique de la microstructure —

Partie 1: Prises de vue photomicrographiques et description

Reference number
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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 4, *Sampling and testing methods for hardmetals,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS M11, *Powder metallurgy,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 4499-1:2008), which has been technically revised.

The main changes compared to the previous edition are as follows:

— in Clause 2 and 6.1.4: reference to ISO 3878 has been removed;

— an apparatus (4.3) Electron Back Scatter Diffraction (EBSD) has been added;

— 3.3: “TaC” corrected.

A list of all parts in the ISO 4499 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Hardmetals — Metallographic determination of microstructure —

Part 1: Photomicrographs and description

1 Scope

This document specifies the methods of metallographic determination of the microstructure of hardmetals using photomicrographs.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4499-2, *Hardmetals — Metallographic determination of microstructure — Part 2: Measurement of WC grain size*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
***α*-phase**
tungsten carbide

3.2
***β*-phase**
binder phase (for example, based on Co, Ni, Fe)

3.3
***γ*-phase**
carbide having a cubic lattice (for example, TiC, TaC) which may contain other carbides (for example WC) in solid solution

4 Apparatus

4.1 Metallographic microscope, permitting observations at magnifications up to 1 500 × .

4.2 Scanning electron microscope for magnification over 1 500 × .

4.3 Electron back scatter diffraction (EBSD).