INTERNATIONAL STANDARD

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Metallic powders — Test method for the determination of non-metallic inclusions in metal powders using a powder-forged specimen

Poudres métalliques — Détermination de la teneur en inclusions non métalliques dans les poudres métalliques à l'aide d'une éprouvette forgée de poudre



Reference number ISO 13947:2007(E)

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Foreword

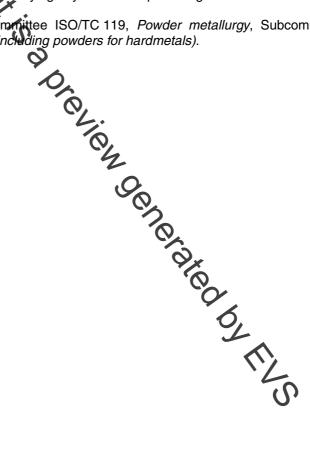
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ISO 13947 was prepared by Technical Complittee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 2, *Sampling and testing methods for powders (including powders for hardmetals)*.



Metallic powders — Test method for the determination of non-metallic inclusions in metal powders using a powder-forged specimen

SAFETY PRECAUTIONS — This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this International Standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies a metallographic method for determining the non-metallic inclusion level in metal powders using a powder-forged specimen. The test method covers repress powder-forged test specimens in which there has been minimal lateral flow (< 1 %). The core region of the powder-forged test specimen contains no porosity detectable at 100× magnification.

This test method can also be used to determine the non-metallic inclusion content of powder-forged steel parts. However, in parts where there has been a significant amount of material flow, the near-neighbour separation distance needs to be changed, or the inclusion sizes agreed between the parties need to be adjusted.

This test method is not suitable for determining the non-metallic inclusion level of parts that have been forged such that the core region contains porosity. At the magnification used for this test method, residual porosity is hard to distinguish from inclusions. Too much residual porosity makes a meaningful assessment of the inclusion population impossible.

This test method may be applied to materials that contain manganese sulfide (admixed or prealloyed), provided the near-neighbour separation distance is changed from 30 µm to 15 µm.

2 Normative references

The following referenced documents are indispensable for the application 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/TR 14321:1997, Sintered metal materials, excluding hardmetals — Metallographic preparation and examination

ASTM B 796-02, Standard test method for nonmetallic inclusion content of powders intended for powder forging (P/F) applications

ASTM E 3-01, Standard practice for preparation of metallographic specimens

ASTM E 768-99, Standard practice for preparing and evaluating specimens for automatic inclusion assessment of steel