
**Metallic powders, excluding powders
for hardmetals — Determination
of compressibility in uniaxial
compression**

*Poudres métalliques, à l'exclusion des poudres pour métaux-durs —
Détermination de la compressibilité sous compression uniaxiale*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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

This fifth edition cancels and replaces the fourth edition (ISO 3927:2011), of which it constitutes a minor revision to adjust punch tolerances in [Figure 2](#) and clarify the use of scale and micrometer.

Metallic powders, excluding powders for hardmetals — Determination of compressibility in uniaxial compression

1 Scope

This document specifies methods for measuring the extent to which a metallic powder is compacted when subjected to uniaxial compressive loading in a confining die under specified conditions.

The method is not applicable to powders for hardmetals.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Symbols

For the purposes of this document, the symbols given in [Table 1](#) apply.

Table 1 — Symbols

Symbol	Designation	Unit
ρ_p	Compressibility ^a	g/cm ³
m	Mass of the compact	g
V	Volume of the compact	cm ³
^a If the compressibility is measured at one pressure only, e.g. 400 N/mm ² , the symbol becomes $\rho_{p(400)}$.		

5 Principle

Uniaxial compaction of a powder in a confining die by double-action pressing. Samples of the powder may be pressed either at a single specified pressure or at a series of specified pressures. After ejection from the die, the density of the compacts is determined.

The density obtained in the former case represents the compressibility of the powder at the specified pressure. The densities obtained in the latter case can be utilized for drawing the compressibility curve of the powder, i.e. a plot of the density as a function of the compacting pressure.