
**Hardmetals — Abrasion tests
for hardmetals**

Métaux-durs — Méthodes d'essai d'abrasion des métaux-durs



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 28080 was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 4, *Sampling and testing methods for hardmetals*.

Introduction

This International Standard provides new and improved methods for testing the abrasion characteristics of hardmetals using rotating-wheel systems. There are a number of abrasion test methods that have been developed that use this type of geometry, including the ASTM G65 dry sand/rubber wheel test, the ASTM G105 wet sand/rubber wheel test and the ASTM B611 steel wheel test. Other variants of these tests have also been developed for specific applications in other institutes. These tests all use a rotating wheel pressed against a test piece, with abrasive material introduced between the wheel and the test piece. Because of this fundamental commonality, much of the methodology is the same for the different tests. However, they do differ in the details of how the abrasive is fed to the interface between the wheel and the test piece, if the test can be carried out in the presence of fluids, and if the abrasive is only used once and passes through the test system, or is reused many times.

This International Standard specifies a common framework that brings together the key features of these tests and gives results that show comparability, and also gives information on their reproducibility and repeatability.

Abrasion wear is not a measure of the wear characteristics of hardmetals under all conditions, and is not to be misinterpreted as indicating wear when hardmetals are used for tooling, such as cutting and milling. It does show the difference in resistance to abrasive use for different carbide compositions and the methods can be used as practical tests or as research methods for material discrimination.

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Hardmetals — Abrasion tests for hardmetals

1 Scope

This International Standard specifies a generic test method to determine the abrasion wear characteristics of hardmetals.

The procedure complements the ASTM G65 method for dry sand/rubber wheel abrasion, the ASTM B611 method for abrasive wear resistance of cemented carbides, and the ASTM G105 method for conducting wet sand/rubber wheel abrasion tests.

The test is appropriate for use in situations where test laboratories have a need to simulate abrasive damage. The procedure includes information which enables the test to be used in a variety of different conditions:

- a) with counterface wheels of different stiffness (for example steel and rubber);
- b) wet and dry;
- c) different abrasive sizes;
- d) different chemical environments.

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 3369, *Impermeable sintered metal materials and hardmetals — Determination of density*

ASTM B611, *Standard Test Method for Abrasive Wear Resistance of Cemented Carbides*

ASTM G65, *Standard Test Method for Measuring Abrasion Using the Dry Sand/Rubber Wheel Apparatus*

ASTM G105, *Standard Test Method for Conducting Wet Sand/Rubber Wheel Abrasion Tests*

3 Principle

The test uses a rotating wheel against which test pieces are pressed. Abrasive is introduced between the wheel and the test piece to cause abrasion to the test piece.