
**Preparation of steel substrates before
application of paints and related
products — Test methods for metallic
blast-cleaning abrasives —**

**Part 9:
Wear testing and performance**



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Published in Switzerland

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products*.

A list of all parts in the ISO 11125 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.

Introduction

This document is a part of the ISO 11125 series that specifies test methods for metallic blast-cleaning abrasives.

During blast-cleaning, metallic abrasives are subjected to repeated impacts on the substrate to be prepared. These mechanical impacts result in abrasive material fatigue until particles breakdown.

The service life of the metallic blast-cleaning abrasives is influenced by:

- the type of abrasive, in particular, its size and shape, its resilience, its hardness and its internal defects;
- the hardness and the surface conditions of the substrate to be prepared;
- the blasting machine and its settings.

The principle of an abrasive service life testing machine is based on a high number of impacts between a representative sample of the abrasive to be tested and a given target.

Several testing machines exist on the market and depending on their design, the service life obtained under laboratory conditions may or may not be comparable to field operation.

It is important that the user is aware of the different parameters and the respective adjustability. The parameters of the testing machines can vary from one machine to another and therefore can result in different test results.

In general, the effect of wear and consumption are tested. Special arrangements may be required for specific test procedures. The results can be used for comparison purposes (quality inspection) or for monitoring (quality control) of the deliveries for uniformity.

Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives —

Part 9: Wear testing and performance

1 Scope

This document specifies three procedures to test the service life of a blast-cleaning abrasive under laboratory conditions.

The performance of an abrasive is also measured by its ability to clean, via transmission of kinetic energy to the substrate in the blasting process. This document also specifies the procedures that can be performed in the same testing machines to help evaluate abrasive performance under laboratory conditions.

This document applies to the testing of virgin metallic blasting media in the delivery state by centrifugal blasting under laboratory conditions.

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 11124-3, *Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives — Part 3: High-carbon cast-steel shot and grit*

ISO 11124-4, *Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives — Part 4: Low-carbon cast-steel shot*

ISO 11124-5, *Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives — Part 5: Cut steel wire*

ISO 11125-1, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 1: Sampling*

ISO 11125-2, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 2: Determination of particle size distribution*

ISO 11125-3, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 3: Determination of hardness*

ISO 11125-4, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 4: Determination of apparent density*

ISO 11125-5, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 5: Determination of percentage defective particles and of microstructure*

ISO 11125-6, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 6: Determination of foreign matter*

ISO 11125-7, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 7: Determination of moisture*

ISO 12944-4, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 4: Types of surface and surface preparation*

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11124-3, ISO 11124-4, ISO 11124-5, ISO 11125-1, ISO 11125-2, ISO 11125-3, ISO 11125-4, ISO 11125-5, ISO 11125-6, ISO 11125-7, ISO 12944-4 and the following apply.

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

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

3.1

blast-cleaning abrasive

solid material intended to be used for abrasive blast-cleaning

3.2

service life

duration of the usability of the *blast-cleaning abrasive* (3.1)

Note 1 to entry: In this field of application the service life is given in the number of cycles in which 100 % of the material wears. In practice, the worn material is removed from the system by ventilation, in the laboratory this is achieved by sieving.

3.3

abrasive consumption

weight of loss of abrasive divided by the weight of thrown abrasive

Note 1 to entry: It is expressed in g/1 000 kg.

3.4

Almen strip

UNS G10700 carbon steel specimen that is used to calibrate the energy of an abrasive stream

3.5

Almen strip holding fixture

device used to fasten *Almen strips* (3.4) in suitable locations that represent the position and angular orientation of the surfaces of a part where the intensity is to be determined and verified

3.6

arc height

flat *Almen strip* (3.4) that, when subjected to a stream of shot moving at an adequate velocity, bends in an arc corresponding to the amount of energy transmitted by the shot stream

Note 1 to entry: The height of the curved arc measured in millimetre is the arc height, measured by an Almen gauge.

3.7

Almen intensity

Almen strip *arc height* (3.6) at saturation

Note 1 to entry: This term comes into effect only when saturation is achieved.