
**Protective clothing for abrasive blasting
operations using granular abrasives**

*Vêtements de protection utilisés lors des opérations de projection
d'abrasifs en grains*

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Published in Switzerland

Foreword

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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 14877 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

[ISO 14877:2002](#)

Annex ZZ provides a list of corresponding International and European Standards for which equivalents are not given in the text.

[28107a3f4aac/iso-14877-2002](#)

For the purposes of this International Standard, the CEN annex regarding fulfilment of European Council Directives has been removed.

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Foreword

The text of EN ISO 14877:2002 has been prepared by Technical Committee CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 94 "Personal safety - Protective clothing and equipment".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2002, and conflicting national standards shall be withdrawn at the latest by October 2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

In abrasive blasting, the worker is exposed to hazards caused by the abrasive (direct projection and rebounding abrasives) and substances produced during the abrasive blasting operation. Depending on the working conditions, the protection against these hazards requires suitable protective clothing as well as suitable respiratory protective equipment. For clothing connected to respiratory protective devices, this standard takes into account the specifications regarding respiratory protective equipment (CEN/TC 79).

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1 Scope

This European Standard specifies minimum requirements and test methods for protective clothing for abrasive blasting operations and for hand protection, for the treatment of surfaces with granular abrasives propelled by compressed air or by mechanical means. The protection against substances that develop during the blasting operation as well as connections between the protective clothing and the respiratory protective device are also covered.

This European Standard does not apply to steam blasting, jet blasting and flame blasting operations.

2 Normative References

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 270:1994, *Respiratory protective devices - Compressed air line breathing apparatus incorporating a hood - Requirement, testing, marking.*

EN 271, *Respiratory protective devices - Compressed air line or powered fresh air hose breathing apparatus incorporating a hood for use in abrasive blasting operations - Requirements, testing, marking.*

EN 340:1993, *Protective clothing - General requirements.*

EN 388:1994, *Protective gloves against mechanical risks.*

EN 420:1994, *General requirements for gloves.*

EN 466:1995/A1, *Protective clothing - Protection against liquid chemicals - Performance requirements for chemical protective clothing with liquid-tight connections between different parts of the clothing (Type 3 Equipment).*

EN 530, *Abrasion resistance of protective clothing material - Test methods.*

EN 863, *Protective clothing - Mechanical properties - Test method: Puncture resistance.*

ISO 1421, *Fabrics coated with rubber or plastics - Determination of breaking strength and elongation at break.*

ISO 3175-2, *Textiles - Dry cleaning and finishing - Part 2: Procedures for tetrachloroethene.*

ISO 3758, *Textiles - Care labelling code using symbols.*

ISO 4674, *Fabrics coated with rubber or plastics - Determination of tear resistance.*

ISO 6330, *Textiles - Domestic washing and drying procedures for textile testing.*

EN ISO 13934-1, *Textiles - Tensile properties of fabrics - Part 1: Determination of maximum force and elongation at maximum force - Strip method.*

EN ISO 13934-2, *Textiles - Tensile properties of fabrics - Part 2: Determination of maximum force - Grab method.*

EN ISO 13937-2, *Textiles - Tearing properties of fabrics - Part 2: Trouser method.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions of EN 340 and EN 420 and the following terms and definitions apply.

3.1

abrasive blasting operation

method for the treatment of surfaces by directing propelled abrasives onto the surface. During the blasting operation the abrasive blasting operator and the blasted material are in a confined room or outdoors. The abrasive blasting operator is directly exposed to the abrasive rebounding from the blasted material, the carrier medium and developing dusts

3.2

abrasives

granular materials that are directed onto the surface of the blasted material at a high speed for surface treatment

3.3

abrasive blasting combination

combination of protective clothing protecting against the risks arising in abrasive blasting operations and suitable respiratory protective equipment

4 Requirements

4.1 General

Materials that may come into direct contact with the wearer's skin shall not be known to be likely to cause skin irritation or any other adverse effect to health.

The finish of any part of the equipment likely to be in contact with the wearer shall be free from sharp edges and burrs.

4.2 Requirements for protective gloves for abrasive blasting operations

4.2.1 General requirements

Protective gloves for abrasive blasting operations shall comply with the requirements specified in EN 420:1994, 4.1, 4.2, 4.4, and 4.5.

The protective performance of the gloves shall be ensured evenly for all parts of the hand.

4.2.2 Abrasion resistance of glove materials

When tested in accordance with 5.2.1, the abrasion resistance of the glove material shall meet at least performance level 3 in accordance with EN 388:1994, clause 4. This corresponds to an abrasion resistance of 2 000 cycles.

4.2.3 Blade cut resistance of glove materials

When tested in accordance with 5.2.2, the blade cut resistance of the glove material shall meet at least performance level 1 in accordance with EN 388:1994, clause 4. This corresponds to a blade cut resistance of index 1,2.

4.2.4 Tear resistance of glove materials

When tested in accordance with 5.2.3, the tear resistance of the glove material shall meet at least performance level 3 in accordance with EN 388:1994, clause 4. This corresponds to a tear resistance of 50 N.

4.2.5 Puncture resistance of glove materials

When tested in accordance with 5.2.4, the puncture resistance of the glove material shall meet at least performance level 3 accordance with EN 388:1994, clause 4. This corresponds to a puncture resistance of 100 N.

4.2.6 Dimensions of gloves for abrasive blasting operations

When measured in accordance with EN 420:1994, 6.2.3 and 6.2.4, the glove dimensions shall at least comply with the requirements of 5.1.2 of EN 420:1994, with the following values for the minimum length:

Table 1 - minimum length of gloves for abrasive blasting operations

hand size	6	7	8	9	10	11
minimum length of gloves for abrasive blasting operations [mm]	295	305	315	325	340	350

4.2.7 Dexterity for abrasive blasting operations

When tested in accordance with 5.2.5, the dexterity shall meet at least performance level 1 in accordance with EN 420:1994. This corresponds to a pin diameter of 11 mm.

4.3 Requirements for protective clothing for abrasive blasting operations

4.3.1 Types

Three types of protective clothing for abrasive blasting operations shall be defined.

- type 1: Protective clothing that protects the body or parts of the body against the abrasive as well as materials produced by the abrasive blasting operation. This type of protective clothing is independent from respiratory protective equipment.
- type 2: Protective clothing that protects the body or parts of the body against the abrasive as well as materials produced by the abrasive blasting operation. This type of protective clothing is a combination with a suitable respiratory protective device.
- type 3: Protective clothing that protects the entire body of the user against the abrasive as well as materials produced by the abrasive blasting operation and that is dust-tight. This type of protective clothing is a combination with a suitable respiratory protective device.

4.3.2 General requirements for protective clothing for abrasive blasting operations (all types)

4.3.2.1 Dimensional changes of the clothing materials

When tested in accordance with 5.3.2, the dimensional change of the clothing materials shall meet the requirements specified in EN 340.

4.3.2.2 Breaking strength of the clothing materials

When tested in accordance with 5.3.3, the breaking strength of the clothing materials shall be at least 450 N in the two principal directions. This requirement does not apply to materials with an elongation at break exceeding 50 %.